U.S. Department of Energy

Washington, D.C.

ORDER

DOE 5820.2A

9-26-88

START

FOR COMPLIANCE

SUBJECT: RADIOACTIVE WASTE MANAGEMENT

1. PURPOSE. To establish policies, guidelines, and minimum requirements by which the Department of Energy (DOE) manages its radioactive and mixed waste and contaminated facilities.

2. CANCELLATION. DOE 5820.2, RADIOACTIVE WASTE MANAGEMENT OF 2-6-84.

3. SCOPE. The provisions of this Order apply to all DOE elements and, as required by law and/or contract and as implemented by the appropriate contracting officer, all DOE contractors and subcontractors performing work that involves management of waste containing radioactivity and/or radioactively contaminated facilities for DOE under the Atomic Energy Act of 1954, as amended (Public Law 83-703).

4. EXCLUSION. This Order does not apply to the management by the Department of commercially generated spent nuclear fuel or high-level radioactive waste, nor to the geologic disposal of high-level waste produced by the Department's activities and operations. Such materials are managed by the Office of Civilian Radioactive Waste Management under the requirements of the Nuclear Waste Policy Act of 1982, as amended (Public Law 97-425).

5. POLICY. Radioactive and mixed wastes shall be managed in a manner that assures protection of the health and safety of the public, DOE, and contractor employees, and the environment. The generation, treatment, storage, transportation, and/or disposal of radioactive wastes, and the other pollutants or hazardous substances they contain, shall be accomplished in a manner that minimizes the generation of such wastes across program office functions and complies with all applicable Federal, State, and local environmental, safety, and health laws and regulations and DOE requirements.

6. REFERENCES. (See Attachment 1.)

7. DEFINITIONS. (See Attachment 2.)

8. RESPONSIBILITIES.

   a. Assistant Secretary for Defense Programs (DP-1) has authority for establishing policy for the management of DOE waste and assuring that DOE waste generated by operations and activities under DP-1 cognizance, or any other waste within the purview of DP-1, is managed according to the requirements of this Order. DP-1 also has general responsibility for assuring that

DISTRIBUTION:

All Departmental Elements

INITIATED BY:

Office of Defense Waste and Transportation Management

WASTE MANAGEMENT DOCUMENTATION REQUIREMENTS

DISCUSSION. To identify principal documentation requirements as identified, sites are required to list and describe (where appropriate) the waste management documentation indicated below. Each of the following paragraphs refer to specific sections of this Order that require the preparation of waste management documentation. Reporting is limited to documents issued in the previous FY, unless the most recent revision of an existing document was issued earlier. Where possible, this Attachment should retain a standard bibliographical format.

(1) Chapter I - High-Level Waste.

(a) Paragraph 3a. List titles and dates of issue of Safety Analysis Reports. Forecast schedule for preparation and issue date of planned Safety Analysis Reports.

(b) Paragraph 3b(3)(c). List titles and dates of documents supporting the periodic assessment of waste storage tank integrity.

(c) Paragraph 3b(4). Cite documentation of contingency actions of the past year. List schedule for completion of corrective actions.

(2) Chapter II - Transuranic Waste.

(a) Paragraph 3c(3). Cite the Transuranic Waste Certification Plan and date of issue. If not issued, give schedule for preparation.

(b) Paragraph 3g(2)(h). Cite the closure plan for interim storage facilities. If not issued, give schedule for preparation.

(c) Paragraph 3(i). Index major documentation developed under the Buried Transuranic - Contaminated Waste Program. Show schedule for preparation of documents in the current fiscal year.

(3) Chapter III - Low-Level Waste.

(a) Paragraph 3b(1). Cite documentation on radiological performance assessment of disposal facilities. If not issued, provide schedule for preparation in paragraph 3 of the Waste Management Plan.

(b) Paragraph 3e(1). Cite Waste Acceptance Criteria for each low-level waste treatment storage and disposal facility. List anticipated additions to this list for the current fiscal year.

(c) Paragraph 3e(3). Report the status of audits of certification activities by operators of disposal facilities. Report status of follow-up reports.

(4) Conducting research and development for DOE waste transportation systems and providing for safe, efficient, and economic transport of materials, pursuant to DOE 1540.1;

(5) Conducting independent health, safety, and quality assurance audits of field waste management organizations, in cooperation with EH-1, to assess compliance with the requirements of this Order;

(6) Issuing, in consultation with EH-1, approval of exemptions from the requirements of this Order (paragraph 9) that are proposed by other Headquarters or field organizations;

(7) Issuing in consultation with EH-1 and Headquarters program organizations updated waste management guidance; and

(8) Approving documents, reports, and plans, as required by this Order, for DP programs and activities.

c. Director of Civilian Radioactive Waste Management (RW-1) is responsible for selected research and development, siting, construction, operation, and management activities assigned to the Secretary of Energy by the Nuclear Waste Policy Act of 1982 (Public Law 97-425) for the interim storage and disposal of high-level waste and spent nuclear fuel. Specific responsibilities include the following:

(1) The long-term care, in cooperation with NE-1, of closed commercial low-level waste sites transferred to DOE;

(2) Lead responsibility, in cooperation with NE-1 and DP-1, for the Integrated Data Base program (see Attachment 1, page 3, paragraph 23);

(3) Assurance that the requirements of DOE Orders are met for all waste management activities under RW-1 purview; and

(4) Independent health, safety, and quality assurance audits of field waste management organizations in cooperation with EH-1, to assess compliance with the requirements of this Order.

d. Assistant Secretary for Nuclear Energy (NE-1) is responsible for assuring that waste generated by operations funded by NE-1 is managed according to the requirements of this Order and that NE-1 program decisions include waste management considerations, as appropriate. Specific responsibilities include:

(1) Managing DOE wastes from NE-1 operations and activities, including the breeder reactor, space nuclear, naval reactor, and remedial action programs, as well as the Three Mile Island and West Valley projects;

Examples of appropriate information include location
logical and chemical characteristics of waste treated/
osed, facility operating parameters, unique or special
sed, and status of permitting activities. Include
yout drawings and flow sheets where appropriate.

ure Plans. This section is used to document the plan-
the site and indicate the direction of radioactive and
agement activities. It should be organized to reflect
ituations. In general, it should: define problems
w requirements for, waste management systems; cite
endations and strategy for making improvements;
s to achieve compliance with regulations; and discuss
current waste management systems such as construction
es, plant upgrades, facility decommissioning/closure.
s should indicate how the findings of system
essments were factored into recommendations and plans.
arly indicate the driving forces behind their stated
to achieve disposal of waste currently in storage; to
performance; to meet regulatory requirements; and to
protection/safety.

Requirements. This section is used to document the
status by updating the "Implementation Summary Table"
entation Plan. It should present these data in simila
It should also report progress realized during the
ining actions to complete, remaining costs, and
etion dates. In addition it should indicate any
original cost and schedule projections in the
Plan, and discuss reasons for variances.

agement (DP Facilities).

lity Descriptions.

Provide an overview of the system used to treat, stor
of hazardous wastes at the site. Use flow sheets ar
ps where appropriate.

scription. Organize according to treatment faciliti
ilities, and disposal. Describe the combination of
used to manage hazardous wastes at the site and incl
n of current methods of disposal. Indicate the kind
s wastes generated and their sources. (Facility
d location maps should be included as appropriate.)
atus of permitting activities and other actions to
pliance with the Resource Conservation and Recovery

f. Director, Naval Nuclear Propulsion Program: Executive Order 12344, statutorily prescribed by PL 98-525 (42 USC 7158 note), establishes the responsibilities and authority of the Director, Naval Nuclear Propulsion Program (who is also the Deputy Assistant Secretary for Naval Reactors within the Department) over all facilities and activities which comprise the Program, a joint Navy-DOE organization. The policy principle promoted by these executive and legislative actions is cited in the Executive Order as "...preserving the basic structure, policies and practices developed for this Program in the past...". Accordingly, The Naval Propulsion Program is exempt from the provisions of this Order. The Director shall maintain an environmental protection program to assure compliance with applicable environmental statutes and regulations. The Director and EH-1 shall exchange information and cooperate as appropriate to facilitate exercise of their respective responsibility.

g. Directors of other Headquarters Program Organizations are responsible for implementing the requirements of this Order for all DOE waste generated by their programs until it is transferred to a DOE or licensed storage/disposal site. For all contaminated facilities under their jurisdiction, they are responsible for assuring that their programmatic decisions include waste management considerations, as appropriate, and for implementing the requirements of other applicable DOE Orders for their waste management programs.

h. Office of General Counsel (GC-1) provides legal advice to program organizations regarding DOE waste management and decommissioning activities involving DOE-owned and privately owned sites; renders legal opinion on DOE authority to undertake remedial action and other waste management activities; and renders legal opinions on, and concurs in, program actions to comply with the National Environmental Policy Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act, the Superfund Amendments and Reauthorization Act, and other legal authorities in conjunction with proposed waste management and decommissioning activities.

i. Assistant Secretary, Management and Administration (MA-1) is responsible for providing contractual and business advice to program organizations regarding DOE waste management activities, including use of DOE management and operating contractors in such activities.

j. Heads of Field Organizations are responsible for all activities that affect the treatment, storage, or disposal of waste in facilities under their jurisdiction regardless of where the waste is generated. Heads of field organizations with treatment, storage or disposal facilities responsibility have the authority for establishing waste management requirements at that facility (e.g., setting waste acceptance criteria, waste certification, verification of contents of waste shipped or to be shipped, concurring in waste reduction plans). In addition, they are responsible for assuring that the day-to-day waste management and surplus facility

CHAPTER VI

WASTE MANAGEMENT PLAN OUTLINE

1. PURPOSE. To provide guidance on the development and maintenance of a waste management plan for each site that generates, treats, stores, or disposes of DOE waste.

2. DISCUSSION. The Order for radioactive waste management emphasizes accountable operational requirements set forth in a prescriptive style. Each site that generates, treats, stores, or disposes of DOE radioactive waste, or decommissions contaminated facilities, is responsible for complying with these requirements in terms of how operations are conducted and how these activities are documented. The documentation serves as the written word that the actual operations are being conducted within the framework of the Order.

   The primary purpose of the Waste Management Plan is to compile and consolidate an annual report on how waste management operations are conducted, what facilities are being used to manage wastes, what forces are acting to change current waste management systems, and what plans are in store for the coming fiscal year. The scope of the plan includes the management of both radioactive and hazardous constituents in the Department's waste, whether these are separated or mixed. The body of the Waste Management Plan should not include descriptions of Environmental Restoration activities, as this information is provided under a separate program. However, several documents prepared with Environmental Restoration funding may be cited in Attachment VI-1 to the Waste Management Plan; this preserves consistency in accounting for documentation. Also, the Waste Management Plan includes the management of the DOE's liquid low-level waste which is not governed specifically by this Order.

   The waste management plan provides a vehicle to report current waste management practices and plans for the coming year. It serves as the core document in the site's waste management operations and should reference supporting documentation as appropriate. The attachment to the Waste Management plan allows sites to account for major documentation as required by the Order.

3. FORMAT FOR WASTE MANAGEMENT PLANS.

   a. Executive Summary. An Executive Summary is mandatory for each Waste Management Plan.

      (1) As a rule of thumb, limit the length of the executive summary to 10 percent or less of the length of the Waste Management Plan. Summarize the past year in waste management including the principal regulatory/environmental issues and the degree to which planned activities were accomplished.

their purview, including: high-level waste; transuranic waste; low-level waste; naturally occurring and accelerator produced radioactive material; mixed waste; and wastes from decommissioning activities (see Attachment 1, page 3, paragraph 23).

k. Manager of Albuquerque Operations Office is responsible, in addition to the responsibilities identified in paragraph 8j, for use of certified packaging, standard containers, transportation, waste acceptance criteria, and all other aspects related to transuranic waste emplacement at the Waste Isolation Pilot Plant. Within the Albuquerque Operations Office, a standing committee, the Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee, is responsible for review, audit, and approval of generator transuranic waste certification programs and activities. The Manager of the Albuquerque Operations Office, as Head of the Waste Isolation Pilot Plant project office, also has responsibility for the design, construction, technology development, and operational activities leading to permanent isolation of transuranic waste from the biosphere.

9. EXEMPTIONS. Exemptions from the requirements of this Order may be granted only with the approval of DP-12 in consultation with EH-1. New or alternate waste management practices that are based on appropriate documented safety, health protection, and economic analyses may be proposed by field organizations and adopted with the approval of DP-12 and EH-1.

10. IMPLEMENTING PROCEDURES AND REQUIREMENTS. Within 6 months of the date of issuance of this Order, Heads of Field Elements shall prepare and submit to appropriate Headquarters program organizations an implementation plan describing schedules, costs, and quality assurance activities for compliance with the requirements of this Order with copies to EH-1 for review and comment. Specific guidance for the plan will be issued by DP-12 under separate cover. Thereafter, the status of compliance with the requirements of this Order shall be reported to the appropriate Headquarters program organization in the annual update of the Waste Management Plans.

11. CLEARANCE UNDER THE PAPERWORK REDUCTION ACT OF 1980. This directive has been determined to contain information collections under the provisions of 5 CFR 1320, "Controlling Paperwork Burdens on the Public." The Office of Management and Budget (OMB) has issued a clearance to the Department (OMB No. 1910-0900) for these information collections.

BY ORDER OF THE SECRETARY OF ENERGY:

LAWRENCE F. DAVENPORT
Assistant Secretary
Management and Administration

(4) Decommissioning Operations.

(a) The decommissioning project shall be conducted in accordance with guidance from Headquarters program offices and the Decommissioning Project Plan. Significant deviations shall be approved by the responsible field organization in consultation with the appropriate program office.

(b) Approval of MA-22 (Office of Project and Facilities Management) shall be obtained before initiating activities to demolish a DOE-owned facility, per the requirements of DOE 4300.1B.

(c) Status reports on project activities shall be prepared in accordance with the requirements of DOE 1332.1A or 4700.1, as appropriate.

(d) Information on waste generation shall be provided to the Integrated Data Base Program, as required.

(e) Decommissioning operations shall be considered a waste generator and shall meet generator requirements contained in the previous chapters of this Order.

(5) Post Decommissioning Activities.

(a) After decommissioning operations have been completed, a final radiological and chemical survey report (or an independent verification survey report, at remote sites) and a project final report shall be prepared. The final report shall include a description of the project, the final status of the property, and the lessons learned from the project.

(b) The responsible field organization shall compile a Project Data Package consisting of, as a minimum: the Record of Completion; the final radiological and chemical survey report; the Project Final Report; and for remote sites, an independent verification survey report, Certification Docket, and appropriate public notices. The Project Data Package shall be retained permanently in the field organization archives.

(c) The responsible program organization shall assure that any necessary long-term maintenance and surveillance or other safety controls are provided for the decommissioned property.

(d) The decommissioned property may be released from DOE ownership according to the requirements of DOE 4300.1B, if the responsible program organization, in consultation with the Office of the Assistant Secretary EH-1, certifies that the property meets

REFERENCES

1. DOE 1332.1A, UNIFORM REPORTING SYSTEM, of 10-15-85, establishes the content and format of plans and reports to be obtained from the Department's contractors and stipulated as a contract requirement.

2. DOE 1430.1A, MANAGEMENT OF THE DEPARTMENT'S SCIENTIFIC AND TECHNICAL INFORMATION, of 9-10-86, which establishes the policy that scientific and technical information developed during work supported by DOE shall be promptly and fully reported to the Technical Information Center (MA-28), located in Oak Ridge, Tennessee, for inclusion in the Department's information data base.

3. DOE 1540.1, MATERIALS TRANSPORTATION AND TRAFFIC MANAGEMENT of 5-3-82, establishes the Department's policies for management of materials transportation activities.

4. DOE 1540.2, HAZARDOUS MATERIAL PACKAGING FOR TRANSPORTATION ADMINISTRATIVE PROCEDURES of 9-30-86, establishes administrative procedures for the certification and use of radioactive and other hazardous materials packaging by the Department of Energy.

5. DOE 2110.1, PRICING OF DEPARTMENTAL MATERIALS AND SERVICES of 2-16-84, which establishes the Department's policy for establishing prices and charges for materials and services provided to outside persons and organizations.

6. DOE 4300.1B, REAL PROPERTY AND SITE DEVELOPMENT PLANNING of 7-1-87, establishes Department policies and procedures for planning the development and utilization of sites and their facilities and for the acquisition, use, inventory, and disposal of real property or interests therein.

7. DOE 4700.1, PROJECT MANAGEMENT SYSTEM, of 3-6-87, establishes the DOE Project Management System (PMS), provides implementing instructions, formats and procedures and sets forth requirements which govern the development, approval and execution of DOE's outlay program acquisition as embodied in the PMS.

8. DOE 5000.3, UNUSUAL OCCURRENCE REPORTING SYSTEM of 11-7-84, establishes the Department's policy and provides instructions for reporting, analyzing, and disseminating information on programmatically significant events.

9. DOE 5400.2, ENVIRONMENTAL COMPLIANCE ISSUE COORDINATION, of 8-13-87, establishes DOE requirements for coordination of significant environmental compliance issues.

10. DOE 5440.1C, NATIONAL ENVIRONMENTAL POLICY ACT of 4-9-85, establishes the Department's policy for implementation of the National Environmental Policy Act of 1969 (Public Law 91-190).

the Superfund Amendments and Reauthorization Act, and other contractual or legal requirements,

(d) Cost effective program management (e.g., maintaining manpower pools, selecting economical decommissioning alternatives), and

(e) Future site plans.

(2) Program organizations shall assure that, prior to initiation of decommissioning activities, adequate surveillance and maintenance is performed for their surplus facilities to meet applicable radiation protection (DOE 5480.1B), hazardous chemical and safety standards, to maintain physical safety and security, and to reduce potential public and environmental hazards. All high-level waste and stored hazardous materials should be removed by the operator as part of the last operational activities prior to entering into the decommissioning phase.

d. Decommissioning Project Activities.

(1) Characterization. Baseline data for each project shall be collected to support a thorough physical, chemical, and radiological characterization to fulfill the requirements of the National Environmental Policy Act reviews, the Resource Conservation and Recovery Act, and the Comprehensive Environmental Response, Compensation, and Liability Act, the Superfund Amendments and Reauthorization Act preliminary assessment/site investigations, and detailed engineering. The baseline data shall include:

(a) Drawings, photographs, and other records reflecting the as-built and as-modified condition of the facility and grounds;

(b) The condition of all structures, existing protective barriers, and systems installed to ensure public, occupational, and environmental safety;

(c) The type, form, quantity, and location of hazardous chemical and radioactive material from past operations at the site; and

(d) Information on factors that could influence the selection of decommissioning alternatives (safe storage, entombment, dismantlement) such as potential future use, long-range site plans required by DOE 4300.1B, facility condition, and potential health, safety, and environmental hazards.

(2) Environmental Review Process. The Comprehensive Environmental Response, Compensation, and Liability Act, the Superfund Amendments and Reauthorization Act and/or the Resource Conservation and Recovery

21. DOE/LLW-63T of 9-87, "Guidance for Conduct of Waste Management Systems Performance Assessment" provides information on meeting the systems performance requirement of Chapter III 3b(2) of DOE 5820.2A.

22. DOE-JIO-025 of 9-87, "Comprehensive Implementation Plan for the DOE Defense Buried Transuranic-Contaminated Waste Program," describes long term management alternatives for all DOE sites with buried transuranic waste.

23. DOE/RW-0006, rev. 3, "Integrated Data Base for 1987: Spent Fuel and Radioactive Waste Inventories, Projections, and Characteristics" of 9-87, with annual updates, summarizes data in the Integrated Data Base program on all domestic spent fuel and radioactive waste. Copies may be obtained from the Office of Nuclear Energy, Germantown, or the Technical Information Center, Oak Ridge.

24. DOE/DP/0020/1 "An Evaluation of Commercial Respository Capacity for the Disposal of Defense High Level Waste," of 6-85, evaluates the use of civilian repository capacity for the disposal of high level waste resulting from Defense activities, and provided to the President as one analytical input for his evaluation as required under the Nuclear Waste Policy Act.

25. Nuclear Waste Policy Act of 1982, as amended, (Public Law 97-425) provides for the development of repositories for the disposal of high-level waste and spent nuclear fuel.

26. Uranium Mill Tailings Radiation Control Act of 1978 (Pubic Law 95-604) establishes national policy for control of uranium mill tailings.

27. Energy Reorganization Act of 1974 (Public Law 93-438), in Section 202, assigns licensing and related regulatory authority to the Nuclear Regulatory Commission for facilities authorized for the express purpose of long-term storage of defense high-level waste.

28. Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980 (Public Law 96-164), Section 213(a) authorizes the Waste Isolation Pilot Plant.

29. Low-Level Radioactive Waste Policy Amendments Act of 1985 (Public Law 99-240) makes the Federal Government responsible for disposal of commercially generated greater than class C waste as defined in Section 3(b)(1)(D) of the Act.

30. Resource Conservation and Recovery Act of 1976, as amended, (Public Law 94-580) establishes safe and environmentally acceptable management practices for solid wastes.

CHAPTER V

DECOMMISSIONING OF RADIOACTIVELY CONTAMINATED FACILITIES

1. PURPOSE. To establish policies and guidelines for the management, decontamination, and decommissioning of radioactively contaminated facilities under DOE ownership or control.

2. POLICY. Radioactively contaminated facilities for which DOE is responsible shall be managed in a safe, cost-effective manner to assure that release of, and exposure to, radioactivity and other hazardous materials comply with Federal and State standards. Facilities, equipment, and valuable materials shall be recovered and reused when practical.

3. REQUIREMENTS. DOE organizations shall develop and document their programs to provide for the surveillance, maintenance, and decommissioning of contaminated facilities. The decommissioning programs shall be implemented as follows:

   a. General.

      (1) Each field organization shall prepare and maintain a complete list of contaminated facilities both operational and excess under its jurisdiction. A continuous record of jurisdictional program responsibility for all contaminated facilities shall be maintained by the cognizant field organization for use in assigning decommissioning responsibility.

      (2) Operational records (e.g., facility design drawings and modifications, characterization data on contamination levels, prior decontamination activities, and incident reports required by DOE Orders) for all contaminated facilities shall be maintained by the cognizant field organization for use in preparing decommissioning plans.

      (3) Planning for facility decommissioning shall be initiated during the design phase for new facilities and prior to termination of operations for existing operational facilities. Such plans shall consider the 2-year budget cycle to assure adequate funding availability.

      (4) Program offices shall be responsible for placing the facility in a safe storage condition, providing surveillance and maintenance, and decommissioning the facilities under their jurisdiction when they become excess to programmatic needs, or for finding another programmatic sponsor for them. For multiple user facilities, the program office shall determine decommissioning liability for user program offices based on each program's overall contribution to the contamination or some other mutually acceptable basis. This cost sharing formula may be applied when the facility is placed in safe storage or during surveillance and maintenance, when appropriate.

40. Title 40 CFR Part 191, of 9-19-85, Environmental Radioactive Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and transuranic Radioactive Waste, establishes radiation protection standards governing the management and storage of spent nuclear fuel or high-level or transuranic wastes at any disposal facility operated by DOE.

41. Title 40 CFR Part 192, of 1-5-83, Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings, concerns the control of residual radioactive material at designated processing or disposal sites.

42. Title 40 CFR Part 261, of 5-19-80, Identification and Listing of Hazardous Waste identifies those solid wastes that are subject to regulation as hazardous waste.

43. Title 40 CFR 262, of 5-19-80, Standards Applicable to Generators of Hazardous Waste, establishes manufacturing, packaging, labeling, record keeping, and reporting requirements for generators of hazardous waste.

44. Title 40 CFR Part 263, of 5-19-80, Standards Applicable to Transporters of Hazardous Waste, establishes manufacturing, record keeping, spill reporting and cleanup requirements for transporters of hazardous waste.

45. Title 40 CFR Part 264, of 5-19-80, Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities, establishes minimum national standards defining the acceptable management of hazardous waste.

46. Title 40 CFR Part 265, of 5-19-80, Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities, establishes minimum national standards that define the acceptable management of hazardous waste during the period of interim status and until certification of final closure.

47. Title 49 CFR Parts 100-178, of 10-1-86, Other Regulations Relating to Transportation: Chapter I-Research and Special Programs Administration, Department of Transportation, prescribes the requirements of the DOT governing the transportation of hazardous material and the manufacture and testing of packaging and containers.

48. ANSI/ASME NQA-1 "American National Standards Institute/American Society of Mechanical Engineers Nuclear Quality Assurance-1," sets forth requirements for the establishment and execution of quality assurance programs for the design, construction, operation, and decommissioning of nuclear facilities.

49. Atomic Energy Act of 1954, as amended 42 U.S.C. § § 2011-2292 (1982) which authorizes and directs the Atomic Energy Commission to produce special nuclear material in its own facilities to produce atomic weapons or atomic weapons parts and to research and develop military applications of atomic energy.

CHAPTER IV

MANAGEMENT OF WASTE CONTAINING AEA 11e(2) BYPRODUCT MATERIAL AND NATURALLY OCCURRING AND ACCELERATOR PRODUCED RADIOACTIVE MATERIAL

1. PURPOSE. To establish policies and guidelines for managing DOE waste containing byproduct material, as defined by section 11e(2) of the Atomic Energy Act of 1954, as amended, and Naturally Occurring and Accelerator Produced Radioactive Material.

2. POLICY. DOE waste containing naturally occurring and accelerator produced radioactive material or byproduct material as defined by section 11e(2) of the Atomic Energy Act, as amended, or similarly contaminated residues derived from DOE remedial actions, shall be stored, stabilized in-place, and/or disposed of consistent with the requirements of the residual radioactive material guidelines contained in 40 CFR 192. Small volumes of DOE waste containing 11e(2) byproduct material or naturally occurring and accelerator produced radioactive material may be managed as low-level waste in accordance with the requirements of Chapter III of this Order. If the waste is classified as mixed waste, management also must be in compliance with the requirements of the Resource Conservation and Recovery Act.

3. REQUIREMENTS.

   a. Waste Management.

      (1) Waste covered under this chapter in quantities too large for acceptance at DOE low-level waste disposal sites shall be managed according to the requirements of 40 CFR 192, and disposed of at specially designated DOE sites or tailing disposal sites established under the Uranium Mill Tailings Radiation Control Act of 1978 (Public Law 95-604). These disposal sites should be identified and developed as needed in support of DOE remedial actions, and will normally be located in the State in which the wastes are generated.

      (2) With the approval of the appropriate field organization, small volumes of 11(e) byproduct material and naturally occurring and accelerator produced radioactive material waste may be disposed of at DOE low-level waste sites in accordance with the requirements of Chapter III of this Order.

      (3) All DOE waste containing:

         (a) Naturally occurring and accelerator produced radioactive material mixed with the Resource Conservation and Recovery Act hazardous chemicals shall be managed as hazardous waste under the Resource Conservation and Recovery Act.

DEFINITIONS

1. Below Regulatory Concern. A definable amount of low-level waste that can be deregulated with minimal risk to the public.

2. Buffer Zone. The smallest region beyond the disposal unit that is required as controlled space for monitoring and for taking mitigative measures, as may be required.

3. Byproduct Material. (Attachment 1, pages 4 and 5, paragraphs 38 and 49.)

   a. Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident or to the process of producing or utilizing special nuclear material. For purposes of determining the applicability of the Resource Conservation and Recovery Act to any radioactive waste, the term "any radioactive material" refers only to the actual radionuclides dispersed or suspended in the waste substance. The nonradioactive hazardous waste component of the waste substance will be subject to regulation under the Resource Conservation and Recovery Act.

   b. The tailings or waste produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content. Ore bodies depleted by uranium solution extraction operations and which remain underground do not constitute "byproduct material."

4. Certified Waste. Waste that has been confirmed to comply with disposal site waste acceptance criteria (e.g., the Waste Isolation Pilot Plant-Waste Acceptance Criteria for transuranic waste) under an approved certification program.

5. Closure.

   a. Operational Closure. Those actions that are taken upon completion of operations to prepare the disposal site or disposal unit for custodial care, (e.g., addition of cover, grading, drainage, erosion control).

   b. Final Site Closure: Those actions that are taken as part of a formal decommissioning or remedial action plan, the purpose of which is to achieve long-term stability of the disposal site and to eliminate to the extent practical the need for active maintenance so that only surveillance, monitoring, and minor custodial care are required.

6. Contact-Handled Transuranic Waste. Packaged transuranic waste whose external surface dose rate does not exceed 200 mrem per hour.

7. Decommissioning. Actions taken to reduce the potential health and safety impacts of DOE contaminated facilities, including activities to stabilize, reduce, or remove radioactive materials or to demolish the facilities.

j. Disposal Site Closure/Post Closure.

(1) Field organizations shall develop site-specific comprehensive closure plans for new and existing operating low level waste disposal sites. The plan shall address closure of disposal sites within a 5-year period after each is filled and shall conform to the requirements of the National Environmental Policy Act process. Performance objectives for existing disposal sites shall be developed on a case-by-case basis as part of the National Environmental Policy Act process.

(2) During closure and post closure, residual radioactivity levels for surface soils shall comply with existing DOE decommissioning guidelines.

(3) Corrective measures shall be applied to new disposal sites or individual disposal units if conditions occur or are forecasted that could jeopardize attainment of the performance objectives of this Order.

(4) Inactive disposal facilities, disposal sites, and disposal units shall be managed in conformance with the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act, and the Superfund Amendments and Reauthorization Act, or, if mixed waste is involved, may be included in permit applications for operation of contiguous disposal facilities.

(5) Closure plans for new and existing operating low-level waste disposal facilities shall be reviewed and approved by the appropriate field organization.

(6) Termination of monitoring and maintenance activity at closed facilities or sites shall be based on an analysis of site performance at the end of the institutional control period.

k. Environmental Monitoring.

(1) Each operational or non-operational low-level waste treatment, storage, and disposal facility shall be monitored by an environmental monitoring program that conforms with DOE 5484.1 and, at a minimum, meet the requirements of paragraph 3K(2) through 3K(4).

(2) The environmental monitoring program shall be designed to measure: (a) operational effluent releases; (b) migration of radionuclides; (c) disposal unit subsidence; and (d) changes in disposal facility and disposal site parameters which may affect long-term site performance.

(3) Based on the characteristics of the facility being monitored, the environmental monitoring program may include, but not necessarily be limited to, monitoring surface soil, air, surface water, and, in the subsurface, soil and water, both in the saturated and the unsaturated zones.

20. Low-Level Waste. Waste that contains radioactivity and is not classified as high-level waste, transuranic waste, or spent nuclear fuel or 11e(2) byproduct material as defined by this Order. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low-level waste, provided the concentration of transuranic is less than 100 nCi/g.

21. Monitoring. The making of observations and measurements to provide data to evaluate the performance of a waste management operation.

22. Mixed Waste. Waste containing both radioactive and hazardous components as defined by the Atomic Energy Act and the Resource Conservation and Recovery Act, respectively.

23. Natural Barrier. The physical, chemical, and hydrological characteristics of the geological environment at the disposal site that, individually and collectively, act to retard or preclude waste migration.

24. Naturally Occurring and Accelerator Produced Radioactive Material. Any radioactive material that can be considered naturally occurring and is not source, special nuclear, or byproduct material or that is produced in a charged particle accelerator.

25. Near Surface Disposal. Disposal in the upper 30 meters of the earth's surface, (e.g. shallow land burial).

26. Performance Assessment. A systematic analysis of the potential risks posed by waste management systems to the public and environment, and a comparison of those risks to established performance objectives.

27. Pyrophoric Material. A material which under normal conditions is liable to cause fires through friction, retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious transportation, handling or disposal hazard.

28. Quality Assurance. All those planned and systematic actions necessary to provide adequate confidence that a facility, structure, system, or component will perform satisfactorily and safely in service. Quality assurance includes quality control, which comprises all those actions necessary to control and verify the features and characteristics of a material, process, product, or service to specified requirements.

29. Radioactive Waste. Solid, liquid, or gaseous material that contains radionuclides regulated under the Atomic Energy Act of 1954, as amended and of negligible economic value considering costs of recovery.

30. Remedial Action. Activities conducted at DOE facilities to reduce potential risks to people and/or harm to the environment from radioactive and/or hazardous substance contamination.

(5) The following are additional disposal requirements intended either to improve stability of the disposal site or to facilitate handling and provide protection of the health and safety of personnel at the disposal site:

(a) Waste must not be packaged for disposal in cardboard or fiberboard boxes, unless such boxes meet DOT requirements and contain stabilized waste with a minimum of void space. For all types of containers, void spaces within the waste and between the waste and its packaging shall be reduced as much as practical.

(b) Liquid wastes, or wastes containing free liquid, must be converted into a form that contains as little freestanding and noncorrosive liquid as is reasonably achievable, but, in no case, shall the liquid exceed 1 percent of the volume of the waste when the waste is in a disposal container, or 0.5 percent of the volume of the waste processed to a stable form.

(c) Waste must not be readily capable of detonation or of explosive decomposition or reaction at normal pressures and temperatures, or of explosive reaction with water.

(d) Waste must not contain, or be capable of generating, quantities of toxic gases, vapors, or fumes harmful to persons transporting, handling, or disposing of the waste. This does not apply to radioactive gaseous waste packaged as identified in paragraph 3i(5)(e).

(e) Waste in a gaseous form must be packaged at a pressure that does not exceed 1.5 atmospheres at 20°C.

(f) Waste must not be pyrophoric. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.

(6) Waste containing amounts of radionuclides below regulatory concern, as defined by Federal regulations, may be disposed without regard to radioactivity content.

(7) Disposal Site Selection.

(a) Disposal site selection criteria (based on planned waste confinement technology) shall be developed for establishing new low-level waste disposal sites.

(b) Disposal site selection shall be based on an evaluation of the prospective site in conjunction with planned waste confinement technology, and in accordance with the the National Environmental Policy Act process.

44. Waste Package. The waste, waste container, and any absorbent that are intended for disposal as a unit. In the case of surface contaminated, damaged, leaking, or breached waste packages, any overpack shall be considered the waste container, and the original container shall be considered part of the waste.

(3) The development of large scale waste treatment facilities shall be supported by appropriate the National Environmental Policy Act documentation in addition to the following:

(a) A document shall be prepared that analyzes waste streams needing treatment, treatment options considered and a rationale for selection of proposed treatment processes;

(b) A construction design report including projected waste throughputs and treatment methods, construction and operating cost estimates; and

(c) A Safety Analysis Report.

(4) Operation of waste treatment facilities shall be supported by adequate documentation including the following:

(a) Operation and maintenance procedures;

(b) Personnel training and qualification procedures;

(c) Monitoring and emergency response plans; and

(d) Records shall be maintained for each package of low-level waste that enters and leaves the treatment facility.

g. Shipment.

(1) The volume of waste and number of shipments of low-level waste shall be minimized and the shipments will be conducted based on plans developed by field organizations. Off site shipment of low-level waste shall be in compliance with DOE 1540.1.

(2) Generators shall provide an annual forecast in the third quarter of the fiscal year to the field organizations managing the off-site disposal facility to which the waste is to be shipped.

(3) Generators must receive advance approval from the receiving facility and shall certify prior to shipment that waste meets the receiving facility waste acceptance criteria. The certification program shall be auditable and able to withstand independent review.

(4) Each package of waste must comply with the labeling requirements of DOE 1540.1.

h. Long-Term Storage.

(1) Low-level waste shall be stored by appropriate methods, to achieve the performance objectives stated in paragraph 3a.

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(4) Waste Minimization. Each DOE-low-level waste generator preparing a design for a new process or process change shall incorporate principles into the design that will minimize the generation of low-level waste.

d. Waste Characterization.

(1) Low-level waste shall be characterized with sufficient accuracy to permit proper segregation, treatment, storage, and disposal. This characterization shall ensure that, upon generation and after processing, the actual physical and chemical characteristics and major radionuclide content are recorded and known during all stages of the waste management process.

(2) Waste characterization data shall be recorded on a waste manifest, as required by paragraph 3m, and shall include:

(a) The physical and chemical characteristics of the waste.

(b) Volume of the waste (total of waste and any solidification or absorbent media).

(c) Weight of the waste (total of waste and any solidification or absorbent media).

(d) Major radionuclides and their concentrations.

(e) Packaging date, package weight, and external volume.

(3) The concentration of a radionuclide may be determined by direct methods or by indirect methods such as use of scaling factors which relate the inferred concentration of one radionuclide to another that is measured, or radionuclide material accountability, if there is reasonable assurance that the indirect methods can be correlated with actual measurements.

e. Waste Acceptance Criteria.

(1) Waste shipped from one field organization to another for treatment, storage or disposal shall be done in accordance with the requirements established by the operations office having responsibility for operations of the receiving facility.

(2) Waste acceptance criteria shall be established for each low-level waste treatment, storage, and disposal facility, and submitted to the cognizant field organization.

(3) Generators of waste shall implement a low-level waste certification program to provide assurance that the waste acceptance criteria for

CHAPTER I

HIGH-LEVEL WASTE

1. PURPOSE. To establish policies and guidelines for managing the Department of Energy's (DOE) high-level waste and any other materials which, because of their highly radioactive nature (level of health risk, longevity of health risk and thermal activity), require similar handling. (Unless demonstrated to the contrary, all high-level waste shall be considered to be radioactive mixed waste and subject to the requirements of the Atomic Energy Act, as amended, and the Resource Conservation and Recovery Act.)

2. POLICY. All high-level waste generated by DOE operations shall be safely stored, treated, and disposed of according to requirements set forth in this Order. Storage operations shall comply with applicable EPA standards and EPA/State regulations. Geologic disposal shall comply with both Nuclear Regulatory Commission regulations and EPA standards.

3. REQUIREMENTS.

   a. Design.

      (1) Requirements for New Facilities.

         (a) Design objectives for new facilities will assure protection of the public and operating personnel from hazards associated with normal high-level waste operations, accident conditions, and the effects of natural phenomena. Other objectives are compliance with DOE policies regarding nuclear safety, quality assurance, fire protection, pollution control, and safeguards and security protection for high-level waste and protection of essential operations from the effects of potential accidents.

         (b) Designs for new storage and treatment facilities shall meet the requirements of DOE 6430.1, applicable EH Orders and 40 CFR 264.

         (c) Designs for new storage facilities shall incorporate features to facilitate retrieval capability.

      (2) Design Review for Existing Facilities. Uniform requirements for the preparation of safety analysis reports for high-level waste operations, detailed in DOE 5481.1B, include the review of existing operational facilities based on current technical criteria. When hazards are identified that should be eliminated, controlled, or mitigated, appropriate upgrading, actions in accordance with paragraph 3a(1) above, shall be identified and implemented according to the requirements of DOE 5481.1B.

CHAPTER III

MANAGEMENT OF LOW-LEVEL WASTE

1. PURPOSE. To establish policies, requirements and guidelines, for managing the Department's solid low-level waste.

2. POLICY.

   a. DOE-low-level waste operations shall be managed to protect the health and safety of the public, preserve the environment of the waste management facilities, and ensure that no legacy requiring remedial action remains after operations have been terminated.

   b. DOE-low-level waste shall be managed on a systematic basis using the most appropriate combination of waste generation reduction, segregation, treatment, and disposal practices so that the radioactive components are contained and the overall system cost effectiveness is maximized.

   c. DOE-low-level waste shall be disposed of on the site at which it is generated, if practical, or if on-site disposal capability is not available, at another DOE disposal facility.

   d. DOE-low-level waste that contains non-radioactive hazardous waste components (mixed waste) shall conform to the requirements of this order, applicable EH Orders, and shall also be regulated by the appropriate regional authorities under the Resource Conservation and Recovery Act.

3. REQUIREMENTS.

   a. Performance Objectives. DOE-low-level waste that has not been disposed of prior to issuance of this Order shall be managed on the schedule developed in the Implementation Plan (See page 7, paragraph 10) to accomplish the following:

      (1) Protect public health and safety in accordance with standards specified in applicable EH Orders and other DOE Orders.

      (2) Assure that external exposure to the waste and concentrations of radioactive material which may be released into surface water, ground water, soil, plants and animals results in an effective dose equivalent that does not exceed 25 mrem/yr to any member of the public. Releases to the atmosphere shall meet the requirements of 40 CFR 61. Reasonable effort should be made to maintain releases of radioactivity in effluents to the general environment as low as is reasonably achievable.

(f) Where required, ventilation and filtration systems shall be provided to maintain radionuclide releases within the guidelines specified in DOE 5481.1B and applicable EH Orders. Ventilation systems shall be provided where the possibility exists for generating flammable and explosive mixtures of gases (e.g., hydrogen/air or organics/air).

(g) Facilities using cathodic corrosion protection systems shall include engineered features that protect against abnormal conditions such as stray currents or system failure. The cathodic protection systems shall be calibrated annually, and all sources of impressed current shall be inspected and/or tested at least every other month.

(h) Engineering controls shall be incorporated to provide liquid volume inventory data and to prevent spills, leaks, and overflows from tanks or containment systems. Examples are level-sensing devices, liquid level alarms, and maintenance of sufficient freeboard. The high-level waste shall be stored at pressures lower than those of ancillary systems (e.g., cooling water).

(i) Nuclear criticality safety considerations and controls shall be evaluated for normal operations and, before any significant operational changes are made, to protect against an uncontrolled nuclear criticality incident (e.g., dissolution of sludges for removal from tank).

(j) Each facility shall utilize remote maintenance features and other appropriate techniques to minimize personnel radiation exposure in accordance with DOE 5481.1B.

(k) Upon loss and subsequent recovery of normal electrical power, high-level waste transfer equipment shall not have the capability to restart without active operator action.

(3) Monitoring, Surveillance, and Leak Detection.

(a) Monitoring and leak detection capability shall be incorporated in the engineering systems (e.g., liquid level sensing devices and alarms for high-level waste liquid systems) to provide rapid identification of failed containment, and measurement of abnormal temperatures. The following, at a minimum, shall be monitored: temperature; pressure; radioactivity in ventilation exhaust; and liquid effluent streams associated with high-level waste facilities. Where the possibility exists for the generation of flammable and explosive mixtures of gases, monitoring shall be conducted. For facilities storing liquid high-level waste, the following should also be monitored: liquid levels; sludge volume; tank chemistry; condensate and cooling water.

(d) Selected closure strategy and justification;

(e) A waste retrieval strategy:

1 Methodology for segregating transuranic and low-level waste,

2 Identification of mixed waste components,

3 Certification of transuranic waste for disposal at the Waste Isolation Pilot Plant,

4 Management of low-level waste and mixed waste, and

5 Plans for maintaining exposures as low as reasonably achievable;

(f) Budget requirements by fiscal year;

(g) Schedule for closure strategy completion; and

(h) Post-closure monitoring and controls.

j. Quality Assurance. Consistent with DOE Order 5700.6B, transuranic waste operations shall be conducted in accordance with applicable requirements of the American National Standards Institute/American Society of Mechanical Engineers Nuclear Quality Assurance-1 (see Attachment 1, page 5, paragraph 48) and other appropriate national consensus standards.

(e) A schedule and procedure shall be developed for monitoring, surveillance, and calibration checks. The frequency of these activities shall be based on the potential rate of equipment deterioration and the possibility of an environmental or human health incident, assuming that a malfunction from equipment failure or human error is not detected between checks. Schedules, procedures, and performance requirements shall be documented in the operating and maintenance documentation.

(f) Each high-level waste facility shall have response procedures for credible emergencies, as identified in the Safety Analysis Reports.

(5) Training.

(a) Operator training and qualification standards shall be developed and an up-to-date record of training status shall be maintained.

(b) Worker safety training must comply with the requirements of DOE 5480.1B and applicable EH Orders.

(6) Quality Assurance. Consistent with DOE Order 5700.6B, high-level waste operations shall be conducted in accordance with applicable requirements of the American National Standards Institute/American Society of Mechanical Engineers Nuclear Quality Assurance-1 and other appropriate national consensus standards. (See Attachment 1, page 5, paragraph 48).

(7) Waste Treatment and Minimization.

(a) For the purpose of economy and enhancing the safety of high-level waste storage, processing programs shall be developed and implemented at the generating site to reduce the quantity of waste being sent to storage, and techniques (e.g., evaporation) shall be implemented to reduce further the waste volume in storage.

(b) Programs should be developed and implemented to treat high-level waste in storage to prepare it for eventual conversion to suitable disposal forms, as such forms are developed. This may include separation of high-level waste into other waste categories, such as transuranic waste or low-level waste.

(c) The chemistry of liquid high-level waste shall be adjusted to control corrosion within design limits for the storage system.

(d) Treatment reagents shall not be placed in a tank system without proven effective mitigative action if they could cause the tank, its ancillary equipment, or the containment system to rupture, leak, or otherwise fail.

h. Waste Isolation Pilot Plant.

(1) The Waste Isolation Pilot Plant is a defense activity of the DOE for the express purpose of providing a research and development facility to demonstrate the safe disposal of radioactive wastes resulting from defense activities.

(2) After the successful demonstration of the safe disposal of defense transuranic wastes, the Waste Isolation Pilot Plant will be the planned destination for all certified contact-handled and remote-handled transuranic waste, including mixed transuranic waste.

(3) Prior to shipment of waste, the Waste Isolation Pilot Plant shall validate the data package for that waste shipment.

(4) Upon receipt of waste, Waste Isolation Pilot Plant activities shall include, but not be limited to, the following:

(a) Verification of the package or assembly identification numbers against the Data Package;

(b) Measurement of the external radiation dose rate of the package and shipping container;

(c) Verification that contamination levels on the package and shipping container surfaces are within acceptable limits; and

(d) Review and proper processing of all shipping papers and manifests.

(5) During a period of up to 5 years from the first emplacement of waste in the Waste Isolation Pilot Plant, the waste shall be stored retrievably. This phase is called the Operations Demonstration Period.

(6) The decision for or against permanent disposal will be made at the end of the Operations Demonstration Period. If the decision is against using the Waste Isolation Pilot Plant as the repository, the stored waste shall be retrieved, repackaged, if necessary, and handled as directed by DOE. At that time, the Waste Isolation Pilot Plant shall be decontaminated, decommissioned, and closed, per agreement with the State of New Mexico.

(7) If the Waste Isolation Pilot Plant is designated a repository, the underground portion of the Waste Isolation Pilot Plant shall be sealed upon completion of all planned transuranic waste disposal activities. Surface facilities shall be decontaminated and decommissioned, and the Waste Isolation Pilot Plant will be closed, per agreement with the state of New Mexico.

(3) Monitoring, Surveillance, and Leak Detection.

(a) Monitoring and surveillance capability shall exist to provide liquid volume, waste inventory data, and identification of failed containment.

(b) A method for periodically assessing waste storage tank integrity (e.g., coupons, photographic inspections, leak detectors, liquid level devices) shall be established and documented.

(c) Emergency power (see paragraph 3b(3)(d)).

(d) Monitoring wells (see paragraph 3b(3)(f)).

(4) Contingency Action.

(a) A contingency action plan shall be maintained to respond to spills or leaks and other credible emergencies as identified in the Safety Analysis Reports.

(b) Leak mitigation (see paragraph 3b(4)(b)).

(c) For emergency situations involving pumpable liquid in singly contained tanks, appropriate equipment (e.g., pumps) shall be maintained to provide removal of liquid.

(5) Training. (see paragraphs 3b(5)(a) and (b)).

(6) Quality Assurance. (see paragraphs 3b(6)(a)).

d. Disposal. New and readily retrievable waste shall be processed and the high-level waste fraction disposed of in a geologic repository according to the requirements of the Nuclear Waste Policy Act of 1982 (Public Law 97-425) as amended. Options for permanent disposal of other waste, such as single shell tank waste, shall be evaluated and include such methods as in-place stabilization as well as retrieval and processing, as required for new and readily retrievable waste. Analytic predictions of disposal system performance shall be prepared and incorporated in the National Environmental Policy Act process.

(1) New and Readily Retrievable. New and readily retrievable existing high-level waste shall be processed to a final immobilized form in facilities such as the Defense Waste Processing Facility and the Hanford Waste Vitrification Plant preparatory to permanent disposal in a deep geologic repository.

(a) Waste acceptance specifications and criteria based upon the requirements outlined in 10 CFR 60.113, 10 CFR 60.131(b)(7), 10 CFR 60.135, 10 CFR 71.87, and 40 CFR 191 shall be developed for

(2) New interim storage facilities shall be sited, designed, constructed, and operated consistent with the requirements of applicable Resource Conservation and Recovery Act regulations and in a manner which satisfactorily addresses the following considerations at a minimum:

(a) Proximity to ground water and areas of seismic activity or flood plains shall be identified, and potential impacts shall be evaluated.

(b) The facility shall be designed and operated to minimize the run on and run off of precipitation. The run off control system shall provide for collecting and sampling run off, which may come in contact with the waste packages, prior to releasing the water for discharge.

(c) An environmental monitoring system shall be provided to detect any release and migration of major radioactive and hazardous components. Background levels of primary radioactive and hazardous waste components shall be determined.

(d) The storage facility design shall minimize the possibility for the unauthorized entry of persons.

(e) Incompatible wastes types shall be placed in separate packages and stored in segregated areas to prevent accidental ignition or chemical reaction.

(f) Waste storage facilities shall be designed and operated to minimize the exposure of personnel to radiation and chemicals.

(g) The storage facility operator shall inspect or verify routinely the condition of waste packages at the storage site for deterioration that may threaten human health or cause release of hazardous or radioactive components to the environment.

(h) The storage facility operator shall prepare plans that identify and describe how the site will be closed at the end of its active life. These plans shall address sampling, testing, and monitoring for major radioactive and hazardous waste components in soil and groundwater.

(i) Sites that use underground storage tanks for the storage of transuranic waste shall comply with the requirements of the Resource Conservation and Recovery Act, as applicable.

(j) Permits shall be acquired, as necessary, from appropriate regulatory entities for all the interim storage facility activities listed above.

CHAPTER II

MANAGEMENT OF TRANSURANIC WASTE

1. PURPOSE. To establish policies and guidelines for managing DOE transuranic waste starting with its generation, continuing through closure of the Waste Isolation Pilot Plant, and finally the management of buried transuranic waste as defined in Attachment 1, page 3, paragraph 22. Transuranic wastes that are also mixed wastes are subject to the requirements of the Atomic Energy Act and the Resource Conservation and Recovery Act. Additionally, buried transuranic wastes are subject to the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act, and the Superfund Amendments and Reauthorization Act.

2. POLICY. Transuranic waste shall be managed to protect the public and worker health and safety, as well as the environment, and performed in compliance with applicable radiation protection standards and environmental regulations. Practical and cost effective methods shall be used to reduce the volume and toxicity of transuranic waste.

   a. Transuranic waste shall be certified in compliance with the Waste Isolation Pilot Plant-Waste Acceptance Criteria, placed in interim storage (if required), and sent to the Waste Isolation Pilot Plant.

   b. Transuranic waste that the Department of Energy has determined, with the concurrence of the EPA Administrator, does not need the degree of isolation provided by a geologic repository or, transuranic waste that cannot be certified or otherwise approved for acceptance at the Waste Isolation Pilot Plant, shall be disposed of by alternative methods. Alternative disposal methods shall be approved by DOE Headquarters (DP-12 and EH-1) and shall comply with the National Environmental Policy Act requirements and EPA/State regulations.

3. REQUIREMENTS.

   a. Waste Classification.

      (1) Any material that is known to be, or suspected of being contaminated with transuranium radionuclides shall be evaluated as soon as possible in the generating process, and determined to be either recoverable material, transuranic waste, low-level waste, mixed waste, or non-radioactive trash in order to avoid commingling the various material streams.

      (2) The lower concentration limit for transuranic waste (>100 nCi/g of waste) shall apply to the contents of any single waste package at the time of assay. The mass of the waste container including shielding shall not be used in calculating the specific activity of the waste.

(2) Certified transuranic waste shall not be commingled with noncertified transuranic waste and shall be stored in a manner unlikely to alter its certification status.

(3) Transuranic waste in storage areas shall be protected from unauthorized access.

(4) Transuranic wastes in storage shall be monitored periodically to ensure that the wastes are not releasing their radioactive and/or hazardous constituents.

(5) Transuranic waste storage facilities shall be designed, constructed, maintained, and operated to minimize the possibility of fire, explosion, or accidental release of radioactive and/or hazardous components of the waste to the environment.

(6) Facilities which store transuranic waste shall have a contingency plan designed to minimize the adverse impacts of fire, explosion, or accidental release of hazardous components of the waste to the environment.

(7) Transuranic waste shall be stored in such a way so as to maintain radiation exposures as low as reasonably achievable.

f. Transportation/Shipping to the Waste Isolation Pilot Plant.

(1) Transuranic waste shipments shall comply with the provisions of DOE and DOT regulations, pursuant to DOE 1540.1.

(2) Transuranic waste shipments by truck shall be by a DOE-controlled carrier system. All transuranic waste shall be transported in certified Type B packaging.

(3) Shipping papers shall provide the information required by DOT (49 CFR 172, Subpart C), the Waste Isolation Pilot Plant Data Package (WIPP-DOE-157), and, as necessary, the manifest required by EPA (40 CFR 261, and 262).

(4) Distribution of the shipping papers shall be as follows:

(a) Shipper - one copy (or more);

(b) Carrier - one copy; and

(c) Waste Isolation Pilot Plant - two copies.

A copy of the papers will be returned by the Waste Isolation Pilot Plant to the shipper after emplacement of the waste at the Waste Isolation Pilot Plant.

c. Transuranic Waste Certification.

(1) Transuranic waste shall be certified, pursuant to the Waste Isolation Pilot Plant-Waste Acceptance Criteria, placed in interim storage, and sent to the Waste Isolation Pilot Plant when it becomes operational.

(2) Uncertified transuranic waste shall not be sent to the Waste Isolation Pilot Plant except by special permission granted in response to a formal, documented request to the Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee and the Waste Isolation Pilot Plant Waste Operations.

(3) All transuranic waste certification sites shall prepare a certification plan which describes how the waste meets each waste acceptance criterion described in the WIPP-DOE-069 (see Attachment 1, page 3, paragraph 18).

(4) Each certification plan shall define controls and other measures to ensure that each element of the certification plan is performed adequately as described. Requirements for these quality assurance activities are described in the WIPP-DOE-120 (see Attachment 1, page 2, paragraph 19).

(5) Certification plans, including associated quality assurance plans, shall be submitted for review, comment, and approval by the Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee.

(6) The Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee shall submit certification and associated quality assurance plans to the state of New Mexico's Environmental Evaluation Group for review and comment prior to granting formal approval of such plans.

(7) The Environmental Evaluation Groups's comments on certification and associated quality assurance plans shall be resolved between the affected site and the Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee prior to granting formal approval of the plans.

(8) Approved certification and associated quality assurance plans shall be implemented by the generating sites using specific, written operational procedures.

(9) Certification activities conducted under approved plans and procedures shall be audited periodically, in accordance with a written audit program plan on a continuing basis by the Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee. An Environmental Evaluation Group representative may accompany the Waste Isolation

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      (1) Any material that is known to be, or suspected of being contaminated with transuranium radionuclides shall be evaluated as soon as possible in the generating process, and determined to be either recoverable material, transuranic waste, low-level waste, mixed waste, or non-radioactive trash in order to avoid commingling the various material streams.

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(a) Proximity to ground water and areas of seismic activity or flood plains shall be identified, and potential impacts shall be evaluated.

(b) The facility shall be designed and operated to minimize the run on and run off of precipitation. The run off control system shall provide for collecting and sampling run off, which may come in contact with the waste packages, prior to releasing the water for discharge.

(c) An environmental monitoring system shall be provided to detect any release and migration of major radioactive and hazardous components. Background levels of primary radioactive and hazardous waste components shall be determined.

(d) The storage facility design shall minimize the possibility for the unauthorized entry of persons.

(e) Incompatible wastes types shall be placed in separate packages and stored in segregated areas to prevent accidental ignition or chemical reaction.

(f) Waste storage facilities shall be designed and operated to minimize the exposure of personnel to radiation and chemicals.

(g) The storage facility operator shall inspect or verify routinely the condition of waste packages at the storage site for deterioration that may threaten human health or cause release of hazardous or radioactive components to the environment.

(h) The storage facility operator shall prepare plans that identify and describe how the site will be closed at the end of its active life. These plans shall address sampling, testing, and monitoring for major radioactive and hazardous waste components in soil and groundwater.

(i) Sites that use underground storage tanks for the storage of transuranic waste shall comply with the requirements of the Resource Conservation and Recovery Act, as applicable.

(j) Permits shall be acquired, as necessary, from appropriate regulatory entities for all the interim storage facility activities listed above.

(3) Monitoring, Surveillance, and Leak Detection.

(a) Monitoring and surveillance capability shall exist to provide liquid volume, waste inventory data, and identification of failed containment.

(b) A method for periodically assessing waste storage tank integrity (e.g., coupons, photographic inspections, leak detectors, liquid level devices) shall be established and documented.

(c) Emergency power (see paragraph 3b(3)(d)).

(d) Monitoring wells (see paragraph 3b(3)(f)).

(4) Contingency Action.

(a) A contingency action plan shall be maintained to respond to spills or leaks and other credible emergencies as identified in the Safety Analysis Reports.

(b) Leak mitigation (see paragraph 3b(4)(b)).

(c) For emergency situations involving pumpable liquid in singly contained tanks, appropriate equipment (e.g., pumps) shall be maintained to provide removal of liquid.

(5) Training. (see paragraphs 3b(5)(a) and (b)).

(6) Quality Assurance. (see paragraphs 3b(6)(a)).

d. Disposal. New and readily retrievable waste shall be processed and the high-level waste fraction disposed of in a geologic repository according to the requirements of the Nuclear Waste Policy Act of 1982 (Public Law 97-425) as amended. Options for permanent disposal of other waste, such as single shell tank waste, shall be evaluated and include such methods as in-place stabilization as well as retrieval and processing, as required for new and readily retrievable waste. Analytic predictions of disposal system performance shall be prepared and incorporated in the National Environmental Policy Act process.

(1) New and Readily Retrievable. New and readily retrievable existing high-level waste shall be processed to a final immobilized form in facilities such as the Defense Waste Processing Facility and the Hanford Waste Vitrification Plant preparatory to permanent disposal in a deep geologic repository.

(a) Waste acceptance specifications and criteria based upon the requirements outlined in 10 CFR 60.113, 10 CFR 60.131(b)(7), 10 CFR 60.135, 10 CFR 71.87, and 40 CFR 191 shall be developed for

h. Waste Isolation Pilot Plant.

(1) The Waste Isolation Pilot Plant is a defense activity of the DOE for the express purpose of providing a research and development facility to demonstrate the safe disposal of radioactive wastes resulting from defense activities.

(2) After the successful demonstration of the safe disposal of defense transuranic wastes, the Waste Isolation Pilot Plant will be the planned destination for all certified contact-handled and remote-handled transuranic waste, including mixed transuranic waste.

(3) Prior to shipment of waste, the Waste Isolation Pilot Plant shall validate the data package for that waste shipment.

(4) Upon receipt of waste, Waste Isolation Pilot Plant activities shall include, but not be limited to, the following:

(a) Verification of the package or assembly identification numbers against the Data Package;

(b) Measurement of the external radiation dose rate of the package and shipping container;

(c) Verification that contamination levels on the package and shipping container surfaces are within acceptable limits; and

(d) Review and proper processing of all shipping papers and manifests.

(5) During a period of up to 5 years from the first emplacement of waste in the Waste Isolation Pilot Plant, the waste shall be stored retrievably. This phase is called the Operations Demonstration Period.

(6) The decision for or against permanent disposal will be made at the end of the Operations Demonstration Period. If the decision is against using the Waste Isolation Pilot Plant as the repository, the stored waste shall be retrieved, repackaged, if necessary, and handled as directed by DOE. At that time, the Waste Isolation Pilot Plant shall be decontaminated, decommissioned, and closed, per agreement with the State of New Mexico.

(7) If the Waste Isolation Pilot Plant is designated a repository, the underground portion of the Waste Isolation Pilot Plant shall be sealed upon completion of all planned transuranic waste disposal activities. Surface facilities shall be decontaminated and decommissioned, and the Waste Isolation Pilot Plant will be closed, per agreement with the state of New Mexico.

(e) A schedule and procedure shall be developed for monitoring, surveillance, and calibration checks. The frequency of these activities shall be based on the potential rate of equipment deterioration and the possibility of an environmental or human health incident, assuming that a malfunction from equipment failure or human error is not detected between checks. Schedules, procedures, and performance requirements shall be documented in the operating and maintenance documentation.

(f) Each high-level waste facility shall have response procedures for credible emergencies, as identified in the Safety Analysis Reports.

(5) Training.

(a) Operator training and qualification standards shall be developed and an up-to-date record of training status shall be maintained.

(b) Worker safety training must comply with the requirements of DOE 5480.1B and applicable EH Orders.

(6) Quality Assurance. Consistent with DOE Order 5700.6B, high-level waste operations shall be conducted in accordance with applicable requirements of the American National Standards Institute/American Society of Mechanical Engineers Nuclear Quality Assurance-1 and other appropriate national consensus standards. (See Attachment 1, page 5, paragraph 48).

(7) Waste Treatment and Minimization.

(a) For the purpose of economy and enhancing the safety of high-level waste storage, processing programs shall be developed and implemented at the generating site to reduce the quantity of waste being sent to storage, and techniques (e.g., evaporation) shall be implemented to reduce further the waste volume in storage.

(b) Programs should be developed and implemented to treat high-level waste in storage to prepare it for eventual conversion to suitable disposal forms, as such forms are developed. This may include separation of high-level waste into other waste categories, such as transuranic waste or low-level waste.

(c) The chemistry of liquid high-level waste shall be adjusted to control corrosion within design limits for the storage system.

(d) Treatment reagents shall not be placed in a tank system without proven effective mitigative action if they could cause the tank, its ancillary equipment, or the containment system to rupture, leak, or otherwise fail.

(d) Selected closure strategy and justification;

(e) A waste retrieval strategy:

1 Methodology for segregating transuranic and low-level waste,

2 Identification of mixed waste components,

3 Certification of transuranic waste for disposal at the Waste Isolation Pilot Plant,

4 Management of low-level waste and mixed waste, and

5 Plans for maintaining exposures as low as reasonably achievable;

(f) Budget requirements by fiscal year;

(g) Schedule for closure strategy completion; and

(h) Post-closure monitoring and controls.

j. Quality Assurance. Consistent with DOE Order 5700.6B, transuranic waste operations shall be conducted in accordance with applicable requirements of the American National Standards Institute/American Society of Mechanical Engineers Nuclear Quality Assurance-1 (see Attachment 1, page 5, paragraph 48) and other appropriate national consensus standards.

(f) Where required, ventilation and filtration systems shall be provided to maintain radionuclide releases within the guidelines specified in DOE 5481.1B and applicable EH Orders. Ventilation systems shall be provided where the possibility exists for generating flammable and explosive mixtures of gases (e.g., hydrogen/air or organics/air).

(g) Facilities using cathodic corrosion protection systems shall include engineered features that protect against abnormal conditions such as stray currents or system failure. The cathodic protection systems shall be calibrated annually, and all sources of impressed current shall be inspected and/or tested at least every other month.

(h) Engineering controls shall be incorporated to provide liquid volume inventory data and to prevent spills, leaks, and overflows from tanks or containment systems. Examples are level-sensing devices, liquid level alarms, and maintenance of sufficient freeboard. The high-level waste shall be stored at pressures lower than those of ancillary systems (e.g., cooling water).

(i) Nuclear criticality safety considerations and controls shall be evaluated for normal operations and, before any significant operational changes are made, to protect against an uncontrolled nuclear criticality incident (e.g., dissolution of sludges for removal from tank).

(j) Each facility shall utilize remote maintenance features and other appropriate techniques to minimize personnel radiation exposure in accordance with DOE 5481.1B.

(k) Upon loss and subsequent recovery of normal electrical power, high-level waste transfer equipment shall not have the capability to restart without active operator action.

(3) Monitoring, Surveillance, and Leak Detection.

(a) Monitoring and leak detection capability shall be incorporated in the engineering systems (e.g., liquid level sensing devices and alarms for high-level waste liquid systems) to provide rapid identification of failed containment, and measurement of abnormal temperatures. The following, at a minimum, shall be monitored: temperature; pressure; radioactivity in ventilation exhaust; and liquid effluent streams associated with high-level waste facilities. Where the possibility exists for the generation of flammable and explosive mixtures of gases, monitoring shall be conducted. For facilities storing liquid high-level waste, the following should also be monitored: liquid levels; sludge volume; tank chemistry; condensate and cooling water.

CHAPTER III

MANAGEMENT OF LOW-LEVEL WASTE

1. PURPOSE. To establish policies, requirements and guidelines, for managing the Department's solid low-level waste.

2. POLICY.

   a. DOE-low-level waste operations shall be managed to protect the health and safety of the public, preserve the environment of the waste management facilities, and ensure that no legacy requiring remedial action remains after operations have been terminated.

   b. DOE-low-level waste shall be managed on a systematic basis using the most appropriate combination of waste generation reduction, segregation, treatment, and disposal practices so that the radioactive components are contained and the overall system cost effectiveness is maximized.

   c. DOE-low-level waste shall be disposed of on the site at which it is generated, if practical, or if on-site disposal capability is not available, at another DOE disposal facility.

   d. DOE-low-level waste that contains non-radioactive hazardous waste components (mixed waste) shall conform to the requirements of this order, applicable EH Orders, and shall also be regulated by the appropriate regional authorities under the Resource Conservation and Recovery Act.

3. REQUIREMENTS.

   a. Performance Objectives. DOE-low-level waste that has not been disposed of prior to issuance of this Order shall be managed on the schedule developed in the Implementation Plan (See page 7, paragraph 10) to accomplish the following:

      (1) Protect public health and safety in accordance with standards specified in applicable EH Orders and other DOE Orders.

      (2) Assure that external exposure to the waste and concentrations of radioactive material which may be released into surface water, ground water, soil, plants and animals results in an effective dose equivalent that does not exceed 25 mrem/yr to any member of the public. Releases to the atmosphere shall meet the requirements of 40 CFR 61. Reasonable effort should be made to maintain releases of radioactivity in effluents to the general environment as low as is reasonably achievable.

CHAPTER I

HIGH-LEVEL WASTE

1. PURPOSE. To establish policies and guidelines for managing the Department of Energy's (DOE) high-level waste and any other materials which, because of their highly radioactive nature (level of health risk, longevity of health risk and thermal activity), require similar handling. (Unless demonstrated to the contrary, all high-level waste shall be considered to be radioactive mixed waste and subject to the requirements of the Atomic Energy Act, as amended, and the Resource Conservation and Recovery Act.)

2. POLICY. All high-level waste generated by DOE operations shall be safely stored, treated, and disposed of according to requirements set forth in this Order. Storage operations shall comply with applicable EPA standards and EPA/State regulations. Geologic disposal shall comply with both Nuclear Regulatory Commission regulations and EPA standards.

3. REQUIREMENTS.

   a. Design.

      (1) Requirements for New Facilities.

         (a) Design objectives for new facilities will assure protection of the public and operating personnel from hazards associated with normal high-level waste operations, accident conditions, and the effects of natural phenomena. Other objectives are compliance with DOE policies regarding nuclear safety, quality assurance, fire protection, pollution control, and safeguards and security protection for high-level waste and protection of essential operations from the effects of potential accidents.

         (b) Designs for new storage and treatment facilities shall meet the requirements of DOE 6430.1, applicable EH Orders and 40 CFR 264.

         (c) Designs for new storage facilities shall incorporate features to facilitate retrieval capability.

      (2) Design Review for Existing Facilities. Uniform requirements for the preparation of safety analysis reports for high-level waste operations, detailed in DOE 5481.1B, include the review of existing operational facilities based on current technical criteria. When hazards are identified that should be eliminated, controlled, or mitigated, appropriate upgrading, actions in accordance with paragraph 3a(1) above, shall be identified and implemented according to the requirements of DOE 5481.1B.

(4) Waste Minimization. Each DOE-low-level waste generator preparing a design for a new process or process change shall incorporate principles into the design that will minimize the generation of low-level waste.

d. Waste Characterization.

(1) Low-level waste shall be characterized with sufficient accuracy to permit proper segregation, treatment, storage, and disposal. This characterization shall ensure that, upon generation and after processing, the actual physical and chemical characteristics and major radionuclide content are recorded and known during all stages of the waste management process.

(2) Waste characterization data shall be recorded on a waste manifest, as required by paragraph 3m, and shall include:

(a) The physical and chemical characteristics of the waste.

(b) Volume of the waste (total of waste and any solidification or absorbent media).

(c) Weight of the waste (total of waste and any solidification or absorbent media).

(d) Major radionuclides and their concentrations.

(e) Packaging date, package weight, and external volume.

(3) The concentration of a radionuclide may be determined by direct methods or by indirect methods such as use of scaling factors which relate the inferred concentration of one radionuclide to another that is measured, or radionuclide material accountability, if there is reasonable assurance that the indirect methods can be correlated with actual measurements.

e. Waste Acceptance Criteria.

(1) Waste shipped from one field organization to another for treatment, storage or disposal shall be done in accordance with the requirements established by the operations office having responsibility for operations of the receiving facility.

(2) Waste acceptance criteria shall be established for each low-level waste treatment, storage, and disposal facility, and submitted to the cognizant field organization.

(3) Generators of waste shall implement a low-level waste certification program to provide assurance that the waste acceptance criteria for

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(3) The development of large scale waste treatment facilities shall be supported by appropriate the National Environmental Policy Act documentation in addition to the following:

(a) A document shall be prepared that analyzes waste streams needing treatment, treatment options considered and a rationale for selection of proposed treatment processes;

(b) A construction design report including projected waste throughputs and treatment methods, construction and operating cost estimates; and

(c) A Safety Analysis Report.

(4) Operation of waste treatment facilities shall be supported by adequate documentation including the following:

(a) Operation and maintenance procedures;

(b) Personnel training and qualification procedures;

(c) Monitoring and emergency response plans; and

(d) Records shall be maintained for each package of low-level waste that enters and leaves the treatment facility.

g. Shipment.

(1) The volume of waste and number of shipments of low-level waste shall be minimized and the shipments will be conducted based on plans developed by field organizations. Off site shipment of low-level waste shall be in compliance with DOE 1540.1.

(2) Generators shall provide an annual forecast in the third quarter of the fiscal year to the field organizations managing the off-site disposal facility to which the waste is to be shipped.

(3) Generators must receive advance approval from the receiving facility and shall certify prior to shipment that waste meets the receiving facility waste acceptance criteria. The certification program shall be auditable and able to withstand independent review.

(4) Each package of waste must comply with the labeling requirements of DOE 1540.1.

h. Long-Term Storage.

(1) Low-level waste shall be stored by appropriate methods, to achieve the performance objectives stated in paragraph 3a.

44. Waste Package. The waste, waste container, and any absorbent that are intended for disposal as a unit. In the case of surface contaminated, damaged, leaking, or breached waste packages, any overpack shall be considered the waste container, and the original container shall be considered part of the waste.

(5) The following are additional disposal requirements intended either to improve stability of the disposal site or to facilitate handling and provide protection of the health and safety of personnel at the disposal site:

(a) Waste must not be packaged for disposal in cardboard or fiberboard boxes, unless such boxes meet DOT requirements and contain stabilized waste with a minimum of void space. For all types of containers, void spaces within the waste and between the waste and its packaging shall be reduced as much as practical.

(b) Liquid wastes, or wastes containing free liquid, must be converted into a form that contains as little freestanding and noncorrosive liquid as is reasonably achievable, but, in no case, shall the liquid exceed 1 percent of the volume of the waste when the waste is in a disposal container, or 0.5 percent of the volume of the waste processed to a stable form.

(c) Waste must not be readily capable of detonation or of explosive decomposition or reaction at normal pressures and temperatures, or of explosive reaction with water.

(d) Waste must not contain, or be capable of generating, quantities of toxic gases, vapors, or fumes harmful to persons transporting, handling, or disposing of the waste. This does not apply to radioactive gaseous waste packaged as identified in paragraph 3i(5)(e).

(e) Waste in a gaseous form must be packaged at a pressure that does not exceed 1.5 atmospheres at 20°C.

(f) Waste must not be pyrophoric. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.

(6) Waste containing amounts of radionuclides below regulatory concern, as defined by Federal regulations, may be disposed without regard to radioactivity content.

(7) Disposal Site Selection.

(a) Disposal site selection criteria (based on planned waste confinement technology) shall be developed for establishing new low-level waste disposal sites.

(b) Disposal site selection shall be based on an evaluation of the prospective site in conjunction with planned waste confinement technology, and in accordance with the the National Environmental Policy Act process.

20. Low-Level Waste. Waste that contains radioactivity and is not classified as high-level waste, transuranic waste, or spent nuclear fuel or 11e(2) byproduct material as defined by this Order. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low-level waste, provided the concentration of transuranic is less than 100 nCi/g.

21. Monitoring. The making of observations and measurements to provide data to evaluate the performance of a waste management operation.

22. Mixed Waste. Waste containing both radioactive and hazardous components as defined by the Atomic Energy Act and the Resource Conservation and Recovery Act, respectively.

23. Natural Barrier. The physical, chemical, and hydrological characteristics of the geological environment at the disposal site that, individually and collectively, act to retard or preclude waste migration.

24. Naturally Occurring and Accelerator Produced Radioactive Material. Any radioactive material that can be considered naturally occurring and is not source, special nuclear, or byproduct material or that is produced in a charged particle accelerator.

25. Near Surface Disposal. Disposal in the upper 30 meters of the earth's surface, (e.g. shallow land burial).

26. Performance Assessment. A systematic analysis of the potential risks posed by waste management systems to the public and environment, and a comparison of those risks to established performance objectives.

27. Pyrophoric Material. A material which under normal conditions is liable to cause fires through friction, retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious transportation, handling or disposal hazard.

28. Quality Assurance. All those planned and systematic actions necessary to provide adequate confidence that a facility, structure, system, or component will perform satisfactorily and safely in service. Quality assurance includes quality control, which comprises all those actions necessary to control and verify the features and characteristics of a material, process, product, or service to specified requirements.

29. Radioactive Waste. Solid, liquid, or gaseous material that contains radionuclides regulated under the Atomic Energy Act of 1954, as amended and of negligible economic value considering costs of recovery.

30. Remedial Action. Activities conducted at DOE facilities to reduce potential risks to people and/or harm to the environment from radioactive and/or hazardous substance contamination.

j. Disposal Site Closure/Post Closure.

(1) Field organizations shall develop site-specific comprehensive closure plans for new and existing operating low level waste disposal sites. The plan shall address closure of disposal sites within a 5-year period after each is filled and shall conform to the requirements of the National Environmental Policy Act process. Performance objectives for existing disposal sites shall be developed on a case-by-case basis as part of the National Environmental Policy Act process.

(2) During closure and post closure, residual radioactivity levels for surface soils shall comply with existing DOE decommissioning guidelines.

(3) Corrective measures shall be applied to new disposal sites or individual disposal units if conditions occur or are forecasted that could jeopardize attainment of the performance objectives of this Order.

(4) Inactive disposal facilities, disposal sites, and disposal units shall be managed in conformance with the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act, and the Superfund Amendments and Reauthorization Act, or, if mixed waste is involved, may be included in permit applications for operation of contiguous disposal facilities.

(5) Closure plans for new and existing operating low-level waste disposal facilities shall be reviewed and approved by the appropriate field organization.

(6) Termination of monitoring and maintenance activity at closed facilities or sites shall be based on an analysis of site performance at the end of the institutional control period.

k. Environmental Monitoring.

(1) Each operational or non-operational low-level waste treatment, storage, and disposal facility shall be monitored by an environmental monitoring program that conforms with DOE 5484.1 and, at a minimum, meet the requirements of paragraph 3K(2) through 3K(4).

(2) The environmental monitoring program shall be designed to measure: (a) operational effluent releases; (b) migration of radionuclides; (c) disposal unit subsidence; and (d) changes in disposal facility and disposal site parameters which may affect long-term site performance.

(3) Based on the characteristics of the facility being monitored, the environmental monitoring program may include, but not necessarily be limited to, monitoring surface soil, air, surface water, and, in the subsurface, soil and water, both in the saturated and the unsaturated zones.

DEFINITIONS

1. Below Regulatory Concern. A definable amount of low-level waste that can be deregulated with minimal risk to the public.

2. Buffer Zone. The smallest region beyond the disposal unit that is required as controlled space for monitoring and for taking mitigative measures, as may be required.

3. Byproduct Material. (Attachment 1, pages 4 and 5, paragraphs 38 and 49.)

   a. Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident or to the process of producing or utilizing special nuclear material. For purposes of determining the applicability of the Resource Conservation and Recovery Act to any radioactive waste, the term "any radioactive material" refers only to the actual radionuclides dispersed or suspended in the waste substance. The nonradioactive hazardous waste component of the waste substance will be subject to regulation under the Resource Conservation and Recovery Act.

   b. The tailings or waste produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content. Ore bodies depleted by uranium solution extraction operations and which remain underground do not constitute "byproduct material."

4. Certified Waste. Waste that has been confirmed to comply with disposal site waste acceptance criteria (e.g., the Waste Isolation Pilot Plant-Waste Acceptance Criteria for transuranic waste) under an approved certification program.

5. Closure.

   a. Operational Closure. Those actions that are taken upon completion of operations to prepare the disposal site or disposal unit for custodial care, (e.g., addition of cover, grading, drainage, erosion control).

   b. Final Site Closure: Those actions that are taken as part of a formal decommissioning or remedial action plan, the purpose of which is to achieve long-term stability of the disposal site and to eliminate to the extent practical the need for active maintenance so that only surveillance, monitoring, and minor custodial care are required.

6. Contact-Handled Transuranic Waste. Packaged transuranic waste whose external surface dose rate does not exceed 200 mrem per hour.

7. Decommissioning. Actions taken to reduce the potential health and safety impacts of DOE contaminated facilities, including activities to stabilize, reduce, or remove radioactive materials or to demolish the facilities.

CHAPTER IV

MANAGEMENT OF WASTE CONTAINING AEA 11e(2) BYPRODUCT MATERIAL AND NATURALLY OCCURRING AND ACCELERATOR PRODUCED RADIOACTIVE MATERIAL

1. PURPOSE. To establish policies and guidelines for managing DOE waste containing byproduct material, as defined by section 11e(2) of the Atomic Energy Act of 1954, as amended, and Naturally Occurring and Accelerator Produced Radioactive Material.

2. POLICY. DOE waste containing naturally occurring and accelerator produced radioactive material or byproduct material as defined by section 11e(2) of the Atomic Energy Act, as amended, or similarly contaminated residues derived from DOE remedial actions, shall be stored, stabilized in-place, and/or disposed of consistent with the requirements of the residual radioactive material guidelines contained in 40 CFR 192. Small volumes of DOE waste containing 11e(2) byproduct material or naturally occurring and accelerator produced radioactive material may be managed as low-level waste in accordance with the requirements of Chapter III of this Order. If the waste is classified as mixed waste, management also must be in compliance with the requirements of the Resource Conservation and Recovery Act.

3. REQUIREMENTS.

   a. Waste Management.

      (1) Waste covered under this chapter in quantities too large for acceptance at DOE low-level waste disposal sites shall be managed according to the requirements of 40 CFR 192, and disposed of at specially designated DOE sites or tailing disposal sites established under the Uranium Mill Tailings Radiation Control Act of 1978 (Public Law 95-604). These disposal sites should be identified and developed as needed in support of DOE remedial actions, and will normally be located in the State in which the wastes are generated.

      (2) With the approval of the appropriate field organization, small volumes of 11(e) byproduct material and naturally occurring and accelerator produced radioactive material waste may be disposed of at DOE low-level waste sites in accordance with the requirements of Chapter III of this Order.

      (3) All DOE waste containing:

         (a) Naturally occurring and accelerator produced radioactive material mixed with the Resource Conservation and Recovery Act hazardous chemicals shall be managed as hazardous waste under the Resource Conservation and Recovery Act.

40. Title 40 CFR Part 191, of 9-19-85, Environmental Radioactive Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and transuranic Radioactive Waste, establishes radiation protection standards governing the management and storage of spent nuclear fuel or high-level or transuranic wastes at any disposal facility operated by DOE.

41. Title 40 CFR Part 192, of 1-5-83, Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings, concerns the control of residual radioactive material at designated processing or disposal sites.

42. Title 40 CFR Part 261, of 5-19-80, Identification and Listing of Hazardous Waste identifies those solid wastes that are subject to regulation as hazardous waste.

43. Title 40 CFR 262, of 5-19-80, Standards Applicable to Generators of Hazardous Waste, establishes manufacturing, packaging, labeling, record keeping, and reporting requirements for generators of hazardous waste.

44. Title 40 CFR Part 263, of 5-19-80, Standards Applicable to Transporters of Hazardous Waste, establishes manufacturing, record keeping, spill reporting and cleanup requirements for transporters of hazardous waste.

45. Title 40 CFR Part 264, of 5-19-80, Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities, establishes minimum national standards defining the acceptable management of hazardous waste.

46. Title 40 CFR Part 265, of 5-19-80, Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities, establishes minimum national standards that define the acceptable management of hazardous waste during the period of interim status and until certification of final closure.

47. Title 49 CFR Parts 100-178, of 10-1-86, Other Regulations Relating to Transportation: Chapter I-Research and Special Programs Administration, Department of Transportation, prescribes the requirements of the DOT governing the transportation of hazardous material and the manufacture and testing of packaging and containers.

48. ANSI/ASME NQA-1 "American National Standards Institute/American Society of Mechanical Engineers Nuclear Quality Assurance-1," sets forth requirements for the establishment and execution of quality assurance programs for the design, construction, operation, and decommissioning of nuclear facilities.

49. Atomic Energy Act of 1954, as amended 42 U.S.C. § § 2011-2292 (1982) which authorizes and directs the Atomic Energy Commission to produce special nuclear material in its own facilities to produce atomic weapons or atomic weapons parts and to research and develop military applications of atomic energy.

CHAPTER V

DECOMMISSIONING OF RADIOACTIVELY CONTAMINATED FACILITIES

1. PURPOSE. To establish policies and guidelines for the management, decontamination, and decommissioning of radioactively contaminated facilities under DOE ownership or control.

2. POLICY. Radioactively contaminated facilities for which DOE is responsible shall be managed in a safe, cost-effective manner to assure that release of, and exposure to, radioactivity and other hazardous materials comply with Federal and State standards. Facilities, equipment, and valuable materials shall be recovered and reused when practical.

3. REQUIREMENTS. DOE organizations shall develop and document their programs to provide for the surveillance, maintenance, and decommissioning of contaminated facilities. The decommissioning programs shall be implemented as follows:

   a. General.

      (1) Each field organization shall prepare and maintain a complete list of contaminated facilities both operational and excess under its jurisdiction. A continuous record of jurisdictional program responsibility for all contaminated facilities shall be maintained by the cognizant field organization for use in assigning decommissioning responsibility.

      (2) Operational records (e.g., facility design drawings and modifications, characterization data on contamination levels, prior decontamination activities, and incident reports required by DOE Orders) for all contaminated facilities shall be maintained by the cognizant field organization for use in preparing decommissioning plans.

      (3) Planning for facility decommissioning shall be initiated during the design phase for new facilities and prior to termination of operations for existing operational facilities. Such plans shall consider the 2-year budget cycle to assure adequate funding availability.

      (4) Program offices shall be responsible for placing the facility in a safe storage condition, providing surveillance and maintenance, and decommissioning the facilities under their jurisdiction when they become excess to programmatic needs, or for finding another programmatic sponsor for them. For multiple user facilities, the program office shall determine decommissioning liability for user program offices based on each program's overall contribution to the contamination or some other mutually acceptable basis. This cost sharing formula may be applied when the facility is placed in safe storage or during surveillance and maintenance, when appropriate.

21. DOE/LLW-63T of 9-87, "Guidance for Conduct of Waste Management Systems Performance Assessment" provides information on meeting the systems performance requirement of Chapter III 3b(2) of DOE 5820.2A.

22. DOE-JIO-025 of 9-87, "Comprehensive Implementation Plan for the DOE Defense Buried Transuranic-Contaminated Waste Program," describes long term management alternatives for all DOE sites with buried transuranic waste.

23. DOE/RW-0006, rev. 3, "Integrated Data Base for 1987: Spent Fuel and Radioactive Waste Inventories, Projections, and Characteristics" of 9-87, with annual updates, summarizes data in the Integrated Data Base program on all domestic spent fuel and radioactive waste. Copies may be obtained from the Office of Nuclear Energy, Germantown, or the Technical Information Center, Oak Ridge.

24. DOE/DP/0020/1 "An Evaluation of Commercial Respository Capacity for the Disposal of Defense High Level Waste," of 6-85, evaluates the use of civilian repository capacity for the disposal of high level waste resulting from Defense activities, and provided to the President as one analytical input for his evaluation as required under the Nuclear Waste Policy Act.

25. Nuclear Waste Policy Act of 1982, as amended, (Public Law 97-425) provides for the development of repositories for the disposal of high-level waste and spent nuclear fuel.

26. Uranium Mill Tailings Radiation Control Act of 1978 (Pubic Law 95-604) establishes national policy for control of uranium mill tailings.

27. Energy Reorganization Act of 1974 (Public Law 93-438), in Section 202, assigns licensing and related regulatory authority to the Nuclear Regulatory Commission for facilities authorized for the express purpose of long-term storage of defense high-level waste.

28. Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980 (Public Law 96-164), Section 213(a) authorizes the Waste Isolation Pilot Plant.

29. Low-Level Radioactive Waste Policy Amendments Act of 1985 (Public Law 99-240) makes the Federal Government responsible for disposal of commercially generated greater than class C waste as defined in Section 3(b)(1)(D) of the Act.

30. Resource Conservation and Recovery Act of 1976, as amended, (Public Law 94-580) establishes safe and environmentally acceptable management practices for solid wastes.

the Superfund Amendments and Reauthorization Act, and other contractual or legal requirements,

(d) Cost effective program management (e.g., maintaining manpower pools, selecting economical decommissioning alternatives), and

(e) Future site plans.

(2) Program organizations shall assure that, prior to initiation of decommissioning activities, adequate surveillance and maintenance is performed for their surplus facilities to meet applicable radiation protection (DOE 5480.1B), hazardous chemical and safety standards, to maintain physical safety and security, and to reduce potential public and environmental hazards. All high-level waste and stored hazardous materials should be removed by the operator as part of the last operational activities prior to entering into the decommissioning phase.

d. Decommissioning Project Activities.

(1) Characterization. Baseline data for each project shall be collected to support a thorough physical, chemical, and radiological characterization to fulfill the requirements of the National Environmental Policy Act reviews, the Resource Conservation and Recovery Act, and the Comprehensive Environmental Response, Compensation, and Liability Act, the Superfund Amendments and Reauthorization Act preliminary assessment/site investigations, and detailed engineering. The baseline data shall include:

(a) Drawings, photographs, and other records reflecting the as-built and as-modified condition of the facility and grounds;

(b) The condition of all structures, existing protective barriers, and systems installed to ensure public, occupational, and environmental safety;

(c) The type, form, quantity, and location of hazardous chemical and radioactive material from past operations at the site; and

(d) Information on factors that could influence the selection of decommissioning alternatives (safe storage, entombment, dismantlement) such as potential future use, long-range site plans required by DOE 4300.1B, facility condition, and potential health, safety, and environmental hazards.

(2) Environmental Review Process. The Comprehensive Environmental Response, Compensation, and Liability Act, the Superfund Amendments and Reauthorization Act and/or the Resource Conservation and Recovery

REFERENCES

1. DOE 1332.1A, UNIFORM REPORTING SYSTEM, of 10-15-85, establishes the content and format of plans and reports to be obtained from the Department's contractors and stipulated as a contract requirement.

2. DOE 1430.1A, MANAGEMENT OF THE DEPARTMENT'S SCIENTIFIC AND TECHNICAL INFORMATION, of 9-10-86, which establishes the policy that scientific and technical information developed during work supported by DOE shall be promptly and fully reported to the Technical Information Center (MA-28), located in Oak Ridge, Tennessee, for inclusion in the Department's information data base.

3. DOE 1540.1, MATERIALS TRANSPORTATION AND TRAFFIC MANAGEMENT of 5-3-82, establishes the Department's policies for management of materials transportation activities.

4. DOE 1540.2, HAZARDOUS MATERIAL PACKAGING FOR TRANSPORTATION ADMINISTRATIVE PROCEDURES of 9-30-86, establishes administrative procedures for the certification and use of radioactive and other hazardous materials packaging by the Department of Energy.

5. DOE 2110.1, PRICING OF DEPARTMENTAL MATERIALS AND SERVICES of 2-16-84, which establishes the Department's policy for establishing prices and charges for materials and services provided to outside persons and organizations.

6. DOE 4300.1B, REAL PROPERTY AND SITE DEVELOPMENT PLANNING of 7-1-87, establishes Department policies and procedures for planning the development and utilization of sites and their facilities and for the acquisition, use, inventory, and disposal of real property or interests therein.

7. DOE 4700.1, PROJECT MANAGEMENT SYSTEM, of 3-6-87, establishes the DOE Project Management System (PMS), provides implementing instructions, formats and procedures and sets forth requirements which govern the development, approval and execution of DOE's outlay program acquisition as embodied in the PMS.

8. DOE 5000.3, UNUSUAL OCCURRENCE REPORTING SYSTEM of 11-7-84, establishes the Department's policy and provides instructions for reporting, analyzing, and disseminating information on programmatically significant events.

9. DOE 5400.2, ENVIRONMENTAL COMPLIANCE ISSUE COORDINATION, of 8-13-87, establishes DOE requirements for coordination of significant environmental compliance issues.

10. DOE 5440.1C, NATIONAL ENVIRONMENTAL POLICY ACT of 4-9-85, establishes the Department's policy for implementation of the National Environmental Policy Act of 1969 (Public Law 91-190).

(4) Decommissioning Operations.

(a) The decommissioning project shall be conducted in accordance with guidance from Headquarters program offices and the Decommissioning Project Plan. Significant deviations shall be approved by the responsible field organization in consultation with the appropriate program office.

(b) Approval of MA-22 (Office of Project and Facilities Management) shall be obtained before initiating activities to demolish a DOE-owned facility, per the requirements of DOE 4300.1B.

(c) Status reports on project activities shall be prepared in accordance with the requirements of DOE 1332.1A or 4700.1, as appropriate.

(d) Information on waste generation shall be provided to the Integrated Data Base Program, as required.

(e) Decommissioning operations shall be considered a waste generator and shall meet generator requirements contained in the previous chapters of this Order.

(5) Post Decommissioning Activities.

(a) After decommissioning operations have been completed, a final radiological and chemical survey report (or an independent verification survey report, at remote sites) and a project final report shall be prepared. The final report shall include a description of the project, the final status of the property, and the lessons learned from the project.

(b) The responsible field organization shall compile a Project Data Package consisting of, as a minimum: the Record of Completion; the final radiological and chemical survey report; the Project Final Report; and for remote sites, an independent verification survey report, Certification Docket, and appropriate public notices. The Project Data Package shall be retained permanently in the field organization archives.

(c) The responsible program organization shall assure that any necessary long-term maintenance and surveillance or other safety controls are provided for the decommissioned property.

(d) The decommissioned property may be released from DOE ownership according to the requirements of DOE 4300.1B, if the responsible program organization, in consultation with the Office of the Assistant Secretary EH-1, certifies that the property meets

their purview, including: high-level waste; transuranic waste; low-level waste; naturally occurring and accelerator produced radioactive material; mixed waste; and wastes from decommissioning activities (see Attachment 1, page 3, paragraph 23).

k. Manager of Albuquerque Operations Office is responsible, in addition to the responsibilities identified in paragraph 8j, for use of certified packaging, standard containers, transportation, waste acceptance criteria, and all other aspects related to transuranic waste emplacement at the Waste Isolation Pilot Plant. Within the Albuquerque Operations Office, a standing committee, the Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee, is responsible for review, audit, and approval of generator transuranic waste certification programs and activities. The Manager of the Albuquerque Operations Office, as Head of the Waste Isolation Pilot Plant project office, also has responsibility for the design, construction, technology development, and operational activities leading to permanent isolation of transuranic waste from the biosphere.

9. EXEMPTIONS. Exemptions from the requirements of this Order may be granted only with the approval of DP-12 in consultation with EH-1. New or alternate waste management practices that are based on appropriate documented safety, health protection, and economic analyses may be proposed by field organizations and adopted with the approval of DP-12 and EH-1.

10. IMPLEMENTING PROCEDURES AND REQUIREMENTS. Within 6 months of the date of issuance of this Order, Heads of Field Elements shall prepare and submit to appropriate Headquarters program organizations an implementation plan describing schedules, costs, and quality assurance activities for compliance with the requirements of this Order with copies to EH-1 for review and comment. Specific guidance for the plan will be issued by DP-12 under separate cover. Thereafter, the status of compliance with the requirements of this Order shall be reported to the appropriate Headquarters program organization in the annual update of the Waste Management Plans.

11. CLEARANCE UNDER THE PAPERWORK REDUCTION ACT OF 1980. This directive has been determined to contain information collections under the provisions of 5 CFR 1320, "Controlling Paperwork Burdens on the Public." The Office of Management and Budget (OMB) has issued a clearance to the Department (OMB No. 1910-0900) for these information collections.

BY ORDER OF THE SECRETARY OF ENERGY:

LAWRENCE F. DAVENPORT
Assistant Secretary
Management and Administration

CHAPTER VI

WASTE MANAGEMENT PLAN OUTLINE

1. PURPOSE. To provide guidance on the development and maintenance of a waste management plan for each site that generates, treats, stores, or disposes of DOE waste.

2. DISCUSSION. The Order for radioactive waste management emphasizes accountable operational requirements set forth in a prescriptive style. Each site that generates, treats, stores, or disposes of DOE radioactive waste, or decommissions contaminated facilities, is responsible for complying with these requirements in terms of how operations are conducted and how these activities are documented. The documentation serves as the written word that the actual operations are being conducted within the framework of the Order.

   The primary purpose of the Waste Management Plan is to compile and consolidate an annual report on how waste management operations are conducted, what facilities are being used to manage wastes, what forces are acting to change current waste management systems, and what plans are in store for the coming fiscal year. The scope of the plan includes the management of both radioactive and hazardous constituents in the Department's waste, whether these are separated or mixed. The body of the Waste Management Plan should not include descriptions of Environmental Restoration activities, as this information is provided under a separate program. However, several documents prepared with Environmental Restoration funding may be cited in Attachment VI-1 to the Waste Management Plan; this preserves consistency in accounting for documentation. Also, the Waste Management Plan includes the management of the DOE's liquid low-level waste which is not governed specifically by this Order.

   The waste management plan provides a vehicle to report current waste management practices and plans for the coming year. It serves as the core document in the site's waste management operations and should reference supporting documentation as appropriate. The attachment to the Waste Management plan allows sites to account for major documentation as required by the Order.

3. FORMAT FOR WASTE MANAGEMENT PLANS.

   a. Executive Summary. An Executive Summary is mandatory for each Waste Management Plan.

      (1) As a rule of thumb, limit the length of the executive summary to 10 percent or less of the length of the Waste Management Plan. Summarize the past year in waste management including the principal regulatory/environmental issues and the degree to which planned activities were accomplished.

f. Director, Naval Nuclear Propulsion Program: Executive Order 12344, statutorily prescribed by PL 98-525 (42 USC 7158 note), establishes the responsibilities and authority of the Director, Naval Nuclear Propulsion Program (who is also the Deputy Assistant Secretary for Naval Reactors within the Department) over all facilities and activities which comprise the Program, a joint Navy-DOE organization. The policy principle promoted by these executive and legislative actions is cited in the Executive Order as "...preserving the basic structure, policies and practices developed for this Program in the past...". Accordingly, The Naval Propulsion Program is exempt from the provisions of this Order. The Director shall maintain an environmental protection program to assure compliance with applicable environmental statutes and regulations. The Director and EH-1 shall exchange information and cooperate as appropriate to facilitate exercise of their respective responsibility.

g. Directors of other Headquarters Program Organizations are responsible for implementing the requirements of this Order for all DOE waste generated by their programs until it is transferred to a DOE or licensed storage/disposal site. For all contaminated facilities under their jurisdiction, they are responsible for assuring that their programmatic decisions include waste management considerations, as appropriate, and for implementing the requirements of other applicable DOE Orders for their waste management programs.

h. Office of General Counsel (GC-1) provides legal advice to program organizations regarding DOE waste management and decommissioning activities involving DOE-owned and privately owned sites; renders legal opinion on DOE authority to undertake remedial action and other waste management activities; and renders legal opinions on, and concurs in, program actions to comply with the National Environmental Policy Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act, the Superfund Amendments and Reauthorization Act, and other legal authorities in conjunction with proposed waste management and decommissioning activities.

i. Assistant Secretary, Management and Administration (MA-1) is responsible for providing contractual and business advice to program organizations regarding DOE waste management activities, including use of DOE management and operating contractors in such activities.

j. Heads of Field Organizations are responsible for all activities that affect the treatment, storage, or disposal of waste in facilities under their jurisdiction regardless of where the waste is generated. Heads of field organizations with treatment, storage or disposal facilities responsibility have the authority for establishing waste management requirements at that facility (e.g., setting waste acceptance criteria, waste certification, verification of contents of waste shipped or to be shipped, concurring in waste reduction plans). In addition, they are responsible for assuring that the day-to-day waste management and surplus facility

Examples of appropriate information include location
logical and chemical characteristics of waste treated/
osed, facility operating parameters, unique or special
sed, and status of permitting activities. Include
yout drawings and flow sheets where appropriate.

ure Plans. This section is used to document the plan-
the site and indicate the direction of radioactive and
agement activities. It should be organized to reflect
ituations. In general, it should: define problems
w requirements for, waste management systems; cite
endations and strategy for making improvements;
s to achieve compliance with regulations; and discuss
current waste management systems such as construction
es, plant upgrades, facility decommissioning/closure.
s should indicate how the findings of system
essments were factored into recommendations and plans.
arly indicate the driving forces behind their stated
to achieve disposal of waste currently in storage; to
performance; to meet regulatory requirements; and to
protection/safety.

Requirements. This section is used to document the
status by updating the "Implementation Summary Table"
entation Plan. It should present these data in simila
It should also report progress realized during the
ining actions to complete, remaining costs, and
etion dates. In addition it should indicate any
original cost and schedule projections in the
Plan, and discuss reasons for variances.

agement (DP Facilities).

lity Descriptions.

Provide an overview of the system used to treat, stor
of hazardous wastes at the site. Use flow sheets ar
ps where appropriate.

scription. Organize according to treatment faciliti
ilities, and disposal. Describe the combination of
used to manage hazardous wastes at the site and incl
n of current methods of disposal. Indicate the kind
s wastes generated and their sources. (Facility
d location maps should be included as appropriate.)
atus of permitting activities and other actions to
pliance with the Resource Conservation and Recovery

(4) Conducting research and development for DOE waste transportation systems and providing for safe, efficient, and economic transport of materials, pursuant to DOE 1540.1;

(5) Conducting independent health, safety, and quality assurance audits of field waste management organizations, in cooperation with EH-1, to assess compliance with the requirements of this Order;

(6) Issuing, in consultation with EH-1, approval of exemptions from the requirements of this Order (paragraph 9) that are proposed by other Headquarters or field organizations;

(7) Issuing in consultation with EH-1 and Headquarters program organizations updated waste management guidance; and

(8) Approving documents, reports, and plans, as required by this Order, for DP programs and activities.

c. Director of Civilian Radioactive Waste Management (RW-1) is responsible for selected research and development, siting, construction, operation, and management activities assigned to the Secretary of Energy by the Nuclear Waste Policy Act of 1982 (Public Law 97-425) for the interim storage and disposal of high-level waste and spent nuclear fuel. Specific responsibilities include the following:

(1) The long-term care, in cooperation with NE-1, of closed commercial low-level waste sites transferred to DOE;

(2) Lead responsibility, in cooperation with NE-1 and DP-1, for the Integrated Data Base program (see Attachment 1, page 3, paragraph 23);

(3) Assurance that the requirements of DOE Orders are met for all waste management activities under RW-1 purview; and

(4) Independent health, safety, and quality assurance audits of field waste management organizations in cooperation with EH-1, to assess compliance with the requirements of this Order.

d. Assistant Secretary for Nuclear Energy (NE-1) is responsible for assuring that waste generated by operations funded by NE-1 is managed according to the requirements of this Order and that NE-1 program decisions include waste management considerations, as appropriate. Specific responsibilities include:

(1) Managing DOE wastes from NE-1 operations and activities, including the breeder reactor, space nuclear, naval reactor, and remedial action programs, as well as the Three Mile Island and West Valley projects;

WASTE MANAGEMENT DOCUMENTATION REQUIREMENTS

DISCUSSION. To identify principal documentation requirements as identified, sites are required to list and describe (where appropriate) the waste management documentation indicated below. Each of the following paragraphs refer to specific sections of this Order that require the preparation of waste management documentation. Reporting is limited to documents issued in the previous FY, unless the most recent revision of an existing document was issued earlier. Where possible, this Attachment should retain a standard bibliographical format.

(1) Chapter I - High-Level Waste.

(a) Paragraph 3a. List titles and dates of issue of Safety Analysis Reports. Forecast schedule for preparation and issue date of planned Safety Analysis Reports.

(b) Paragraph 3b(3)(c). List titles and dates of documents supporting the periodic assessment of waste storage tank integrity.

(c) Paragraph 3b(4). Cite documentation of contingency actions of the past year. List schedule for completion of corrective actions.

(2) Chapter II - Transuranic Waste.

(a) Paragraph 3c(3). Cite the Transuranic Waste Certification Plan and date of issue. If not issued, give schedule for preparation.

(b) Paragraph 3g(2)(h). Cite the closure plan for interim storage facilities. If not issued, give schedule for preparation.

(c) Paragraph 3(i). Index major documentation developed under the Buried Transuranic - Contaminated Waste Program. Show schedule for preparation of documents in the current fiscal year.

(3) Chapter III - Low-Level Waste.

(a) Paragraph 3b(1). Cite documentation on radiological performance assessment of disposal facilities. If not issued, provide schedule for preparation in paragraph 3 of the Waste Management Plan.

(b) Paragraph 3e(1). Cite Waste Acceptance Criteria for each low-level waste treatment storage and disposal facility. List anticipated additions to this list for the current fiscal year.

(c) Paragraph 3e(3). Report the status of audits of certification activities by operators of disposal facilities. Report status of follow-up reports.

U.S. Department of Energy

Washington, D.C.

ORDER

DOE 5820.2A

9-26-88

START

FOR COMPLIANCE

SUBJECT: RADIOACTIVE WASTE MANAGEMENT

1. PURPOSE. To establish policies, guidelines, and minimum requirements by which the Department of Energy (DOE) manages its radioactive and mixed waste and contaminated facilities.

2. CANCELLATION. DOE 5820.2, RADIOACTIVE WASTE MANAGEMENT OF 2-6-84.

3. SCOPE. The provisions of this Order apply to all DOE elements and, as required by law and/or contract and as implemented by the appropriate contracting officer, all DOE contractors and subcontractors performing work that involves management of waste containing radioactivity and/or radioactively contaminated facilities for DOE under the Atomic Energy Act of 1954, as amended (Public Law 83-703).

4. EXCLUSION. This Order does not apply to the management by the Department of commercially generated spent nuclear fuel or high-level radioactive waste, nor to the geologic disposal of high-level waste produced by the Department's activities and operations. Such materials are managed by the Office of Civilian Radioactive Waste Management under the requirements of the Nuclear Waste Policy Act of 1982, as amended (Public Law 97-425).

5. POLICY. Radioactive and mixed wastes shall be managed in a manner that assures protection of the health and safety of the public, DOE, and contractor employees, and the environment. The generation, treatment, storage, transportation, and/or disposal of radioactive wastes, and the other pollutants or hazardous substances they contain, shall be accomplished in a manner that minimizes the generation of such wastes across program office functions and complies with all applicable Federal, State, and local environmental, safety, and health laws and regulations and DOE requirements.

6. REFERENCES. (See Attachment 1.)

7. DEFINITIONS. (See Attachment 2.)

8. RESPONSIBILITIES.

   a. Assistant Secretary for Defense Programs (DP-1) has authority for establishing policy for the management of DOE waste and assuring that DOE waste generated by operations and activities under DP-1 cognizance, or any other waste within the purview of DP-1, is managed according to the requirements of this Order. DP-1 also has general responsibility for assuring that

DISTRIBUTION:

All Departmental Elements

INITIATED BY:

Office of Defense Waste and Transportation Management